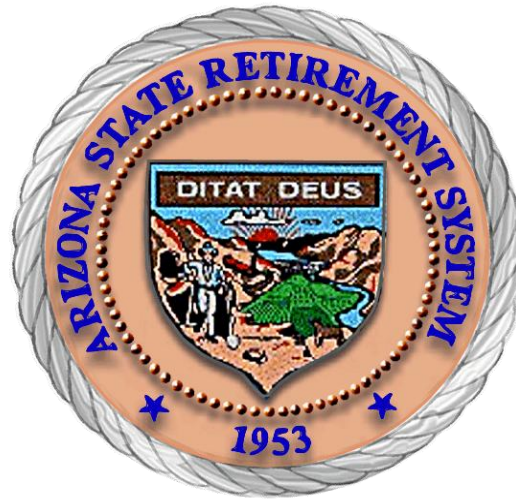


# Arizona State Retirement System Board



## U.S. Equity Mid Cap Asset Class

Gary R. Dokes, Chief Investment Officer  
Dan Kapanak, Manager of Investment Strategy  
Terry A. Dennison, Mercer Investment Consulting

December 21, 2007

# Presentation Topics

- **U.S. Equity Mid Cap Manager Reviews (Aggregate)**
  - Asset Class Snapshot
  - Mandates Overview
  - Risk/Return Bubble Chart
  - Overview Risk Parameters
    - Alpha
    - Information Ratio
    - Peer Review
  - Positions
    - Style Analysis
    - Economic Sectors
  
- **U.S. Equity Mid Cap Manager Reviews (Individual)**
  - Qualitative Factors: People, Philosophy, Process
  - Performance Analysis (Returns – Based)
    - Alpha
    - Information Ratio
    - Peer Review
  - Positions (Holdings – Based)
    - Style Analysis – Portfolio Style Skyline
    - Economic Sectors

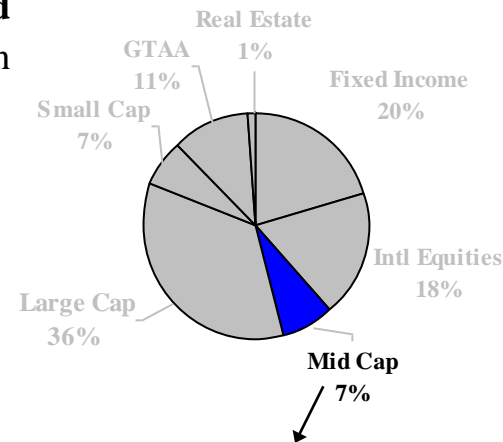
# ASRS U.S. Equity Mid Cap Asset Class (Aggregate)

# ASRS U.S. Equity Mid Cap Asset Class

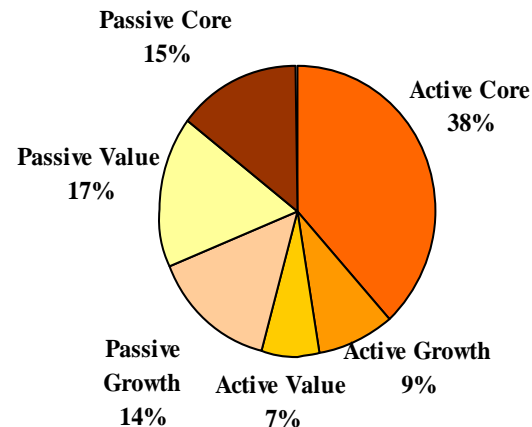
## September 30, 2007

- Market Value: \$2.0b
- Passive Percent: 46%
  - Target 45% 20%
- Active Style Composition:
  - Core: 71%
  - Growth: 16%
  - Value: 13%
- Portfolios:
  - 3 Passive
  - 4 Active:
    - Fundamental: 3
    - Quantitative: 1
- Average Fee: 21 bps

**Total Fund**  
\$28.1 billion



**Style Composition**



# ASRS U.S. Equity Mid Cap Managers

## Mandates Overview

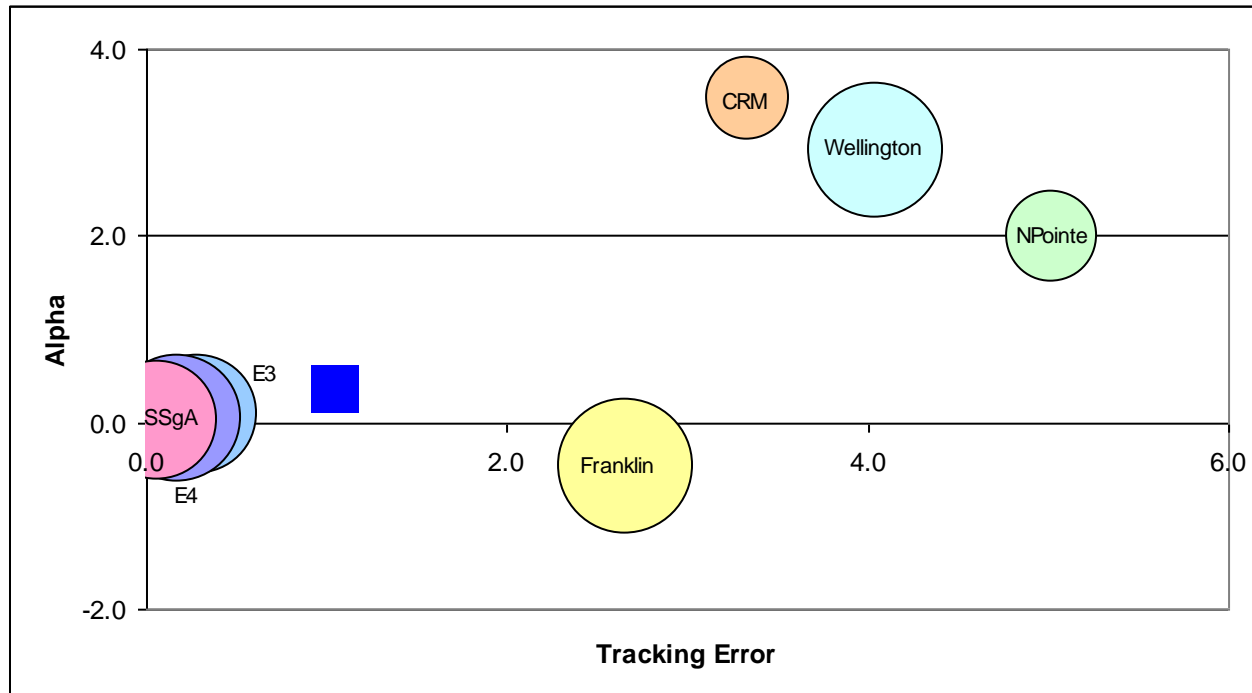
September 30, 2007

Manager	Style	Benchmark	Inception	Expected Alpha (bps)	Portfolio Assets (\$mil)	Strategy Assets (\$mil)
Active						
Franklin	Core	S&P 400	6/30/2002	220	\$387	\$3,077
Wellington	Core	S&P 400	6/30/2002	300	\$394	\$9,200
NorthPointe	Growth	S&P 400 Growth	11/30/2005	250	\$180	\$737
CRM	Value	S&P 400 Value	12/31/2003	300	\$144	\$7,300
Passive						
SSgA	Core	S&P 400	1/31/2000	0	\$296	\$7,248
ASRS E3	Growth	S&P 400 Growth	11/30/2000	10	\$296	N/A
ASRS E4	Value	S&P 400 Value	6/30/2002	10	\$343	N/A

# Risk/Return Bubble Chart

## ASRS U.S. Equity Mid Cap Asset Class

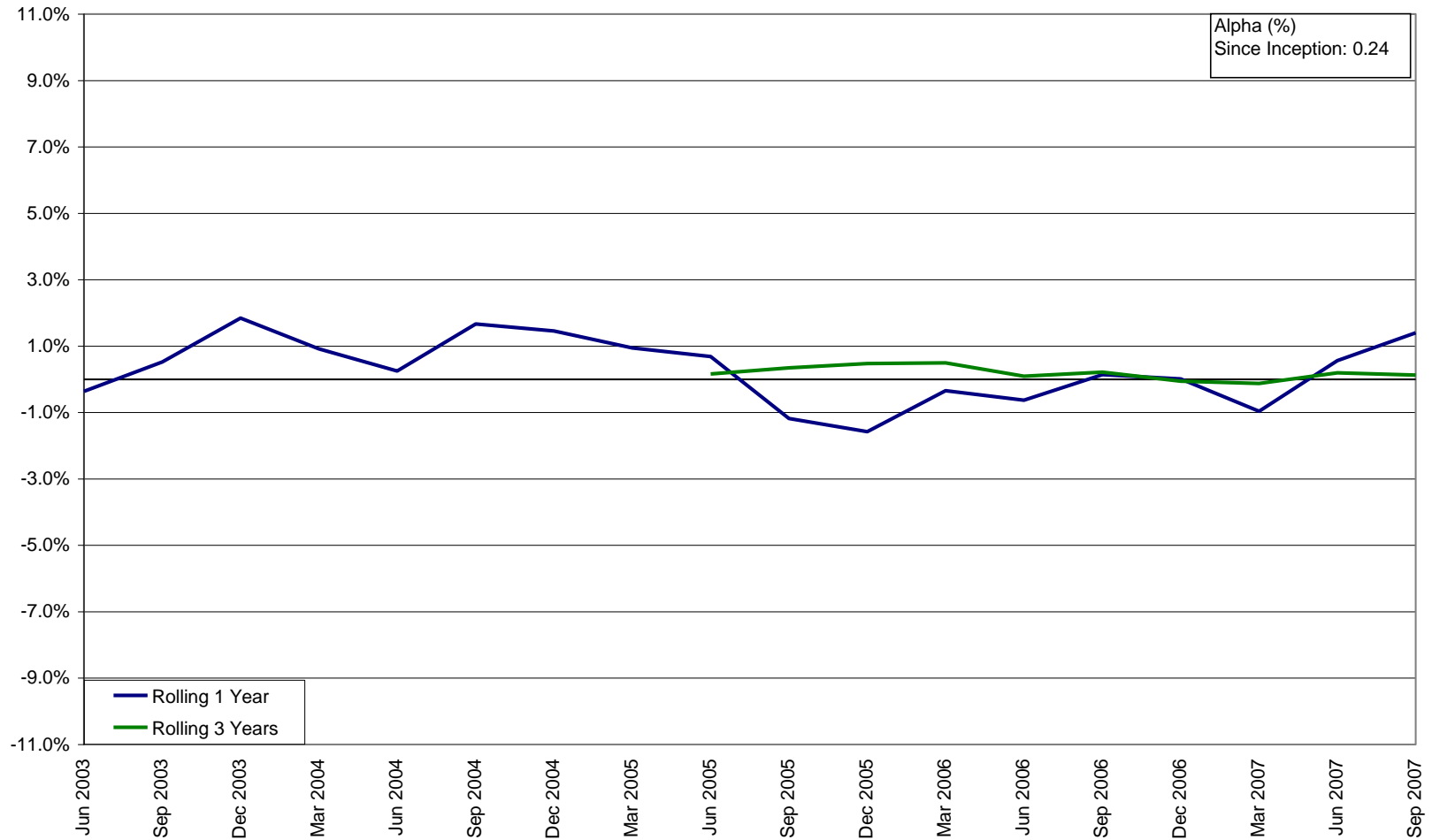
Asset Class Inception (June 30, 2002) – Period Ending September 30, 2007\*



	Manager	Portfolio Size	Inception	Alpha	Tracking Error	Information Ratio
	Franklin	\$ 387.1	6/30/2002	-0.5	2.7	-0.2
	Wellington	\$ 394.1	6/30/2002	2.9	4.2	0.7
	CRM*	\$ 144.5	12/31/2003	3.5	3.5	1.0
	NorthPointe*	\$ 180.4	11/30/2005	2.0	5.4	0.4
	SSgA	\$ 296.5	1/31/2000	0.0	0.1	0.3
	E3	\$ 295.8	11/30/2000	0.1	0.3	0.3
	E4	\$ 343.6	06/30/2002	0.0	0.2	0.2
	<b>Asset Class</b>	<b>\$ 2,042.1</b>	<b>06/30/2002</b>	<b>0.24</b>	<b>1.09</b>	<b>0.22</b>

\* NorthPointe and CRM are calculated over 7 quarters and 15 quarters, respectively.

**Alpha**  
**ASRS U.S. Equity Mid Cap Asset Class**  
**Inception Date June 30, 2002 - Period Ending September 30, 2007**



Calculated quarterly

**Information Ratio**  
**ASRS U.S. Equity Mid Cap Asset Class**  
**Inception Date June 30, 2002 - Period Ending September 30, 2007**



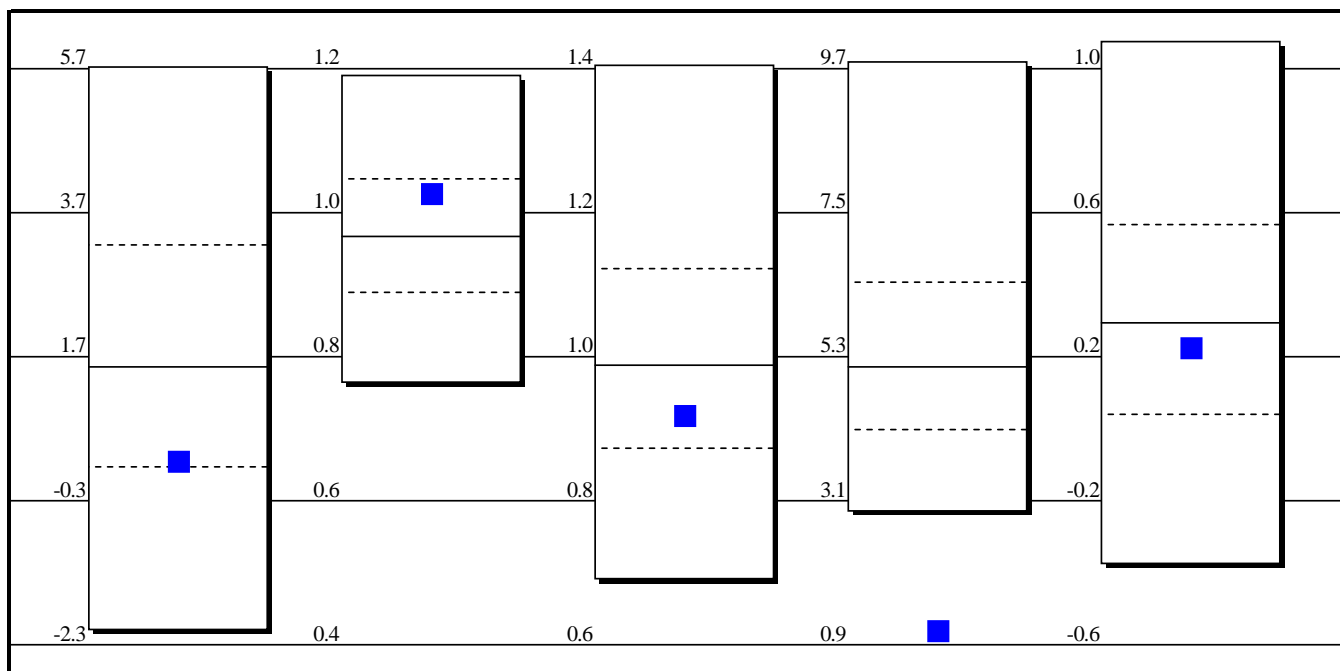
Calculated quarterly



# Peer Comparison with the Mercer U.S. Equity Mid Cap Equity Universe

## Total Fund Mid Cap Equity

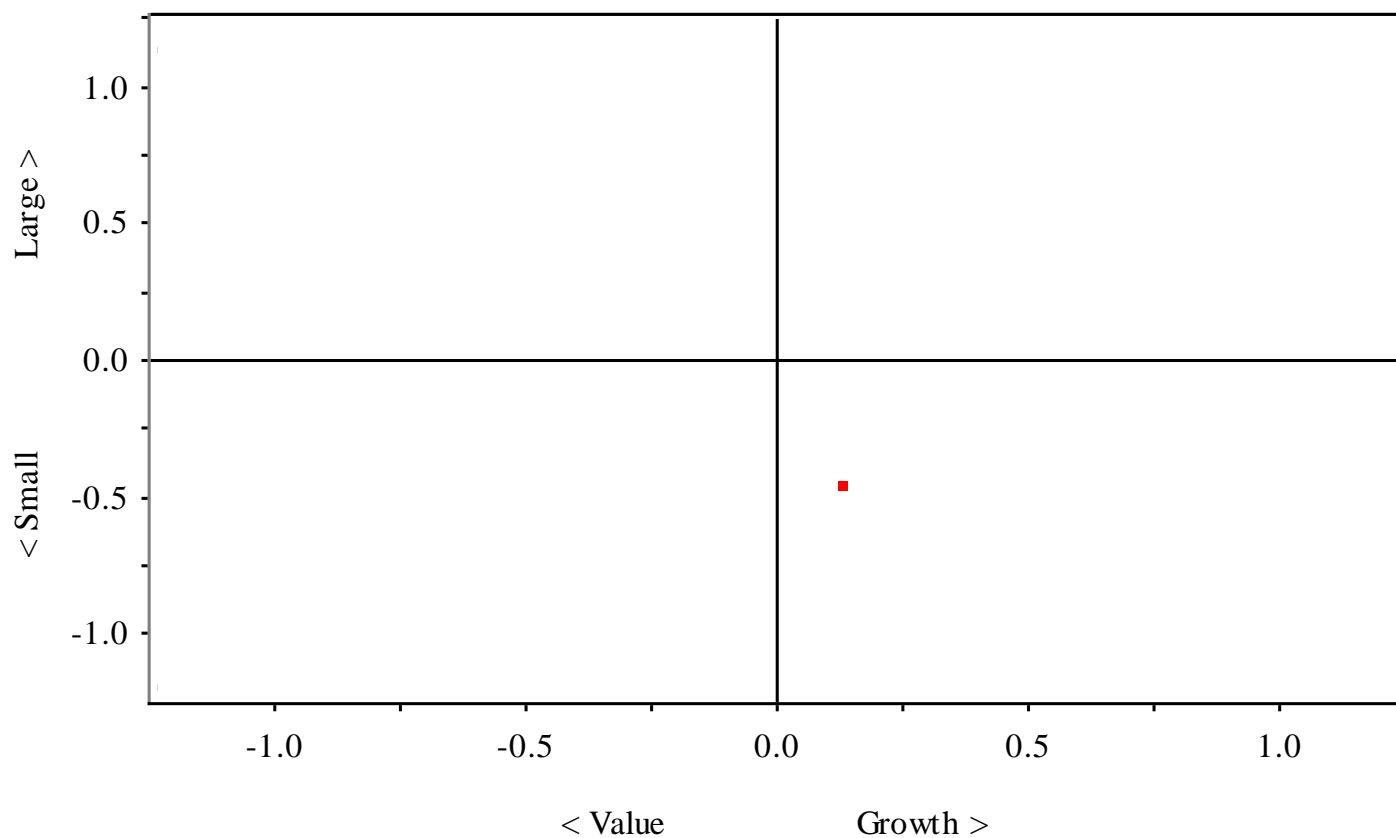
Inception Date June 30, 2002 – Period Ending September 30, 2007



	Excess Return (% pa)	Beta	Reward to Risk	Tracking Error (% pa)	Information Ratio
TotalMC	0.24 (73)	1.02 (30)	0.92 (68)	1.09 (100)	0.22 (56)
5th Percentile	5.71	1.19	1.40	9.78	1.07
Upper Quartile	3.23	1.04	1.12	6.43	0.57
Median	1.54	0.97	0.99	5.13	0.29
Lower Quartile	0.15	0.89	0.87	4.17	0.04
95th Percentile	-2.12	0.76	0.69	2.92	-0.38
Number of Funds	185	185	185	185	185

Risk and Return Characteristics calculated quarterly versus S&P Mid Cap 400

**Positions: Style Analysis**  
**ASRS U.S. Equity Mid Cap Asset Class**  
**July 2002 to September 2007**

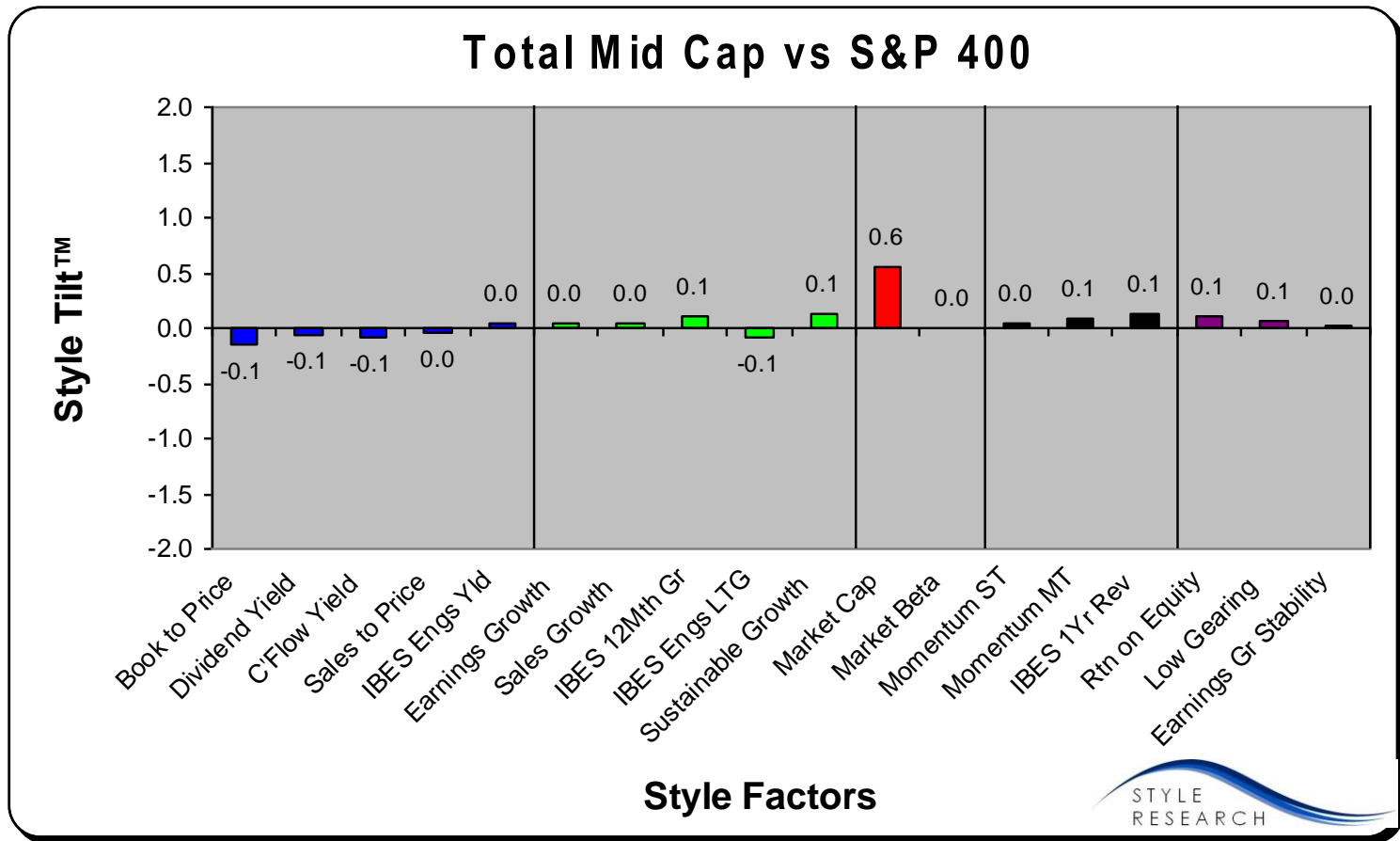


ASRS US MidCap Asset Class

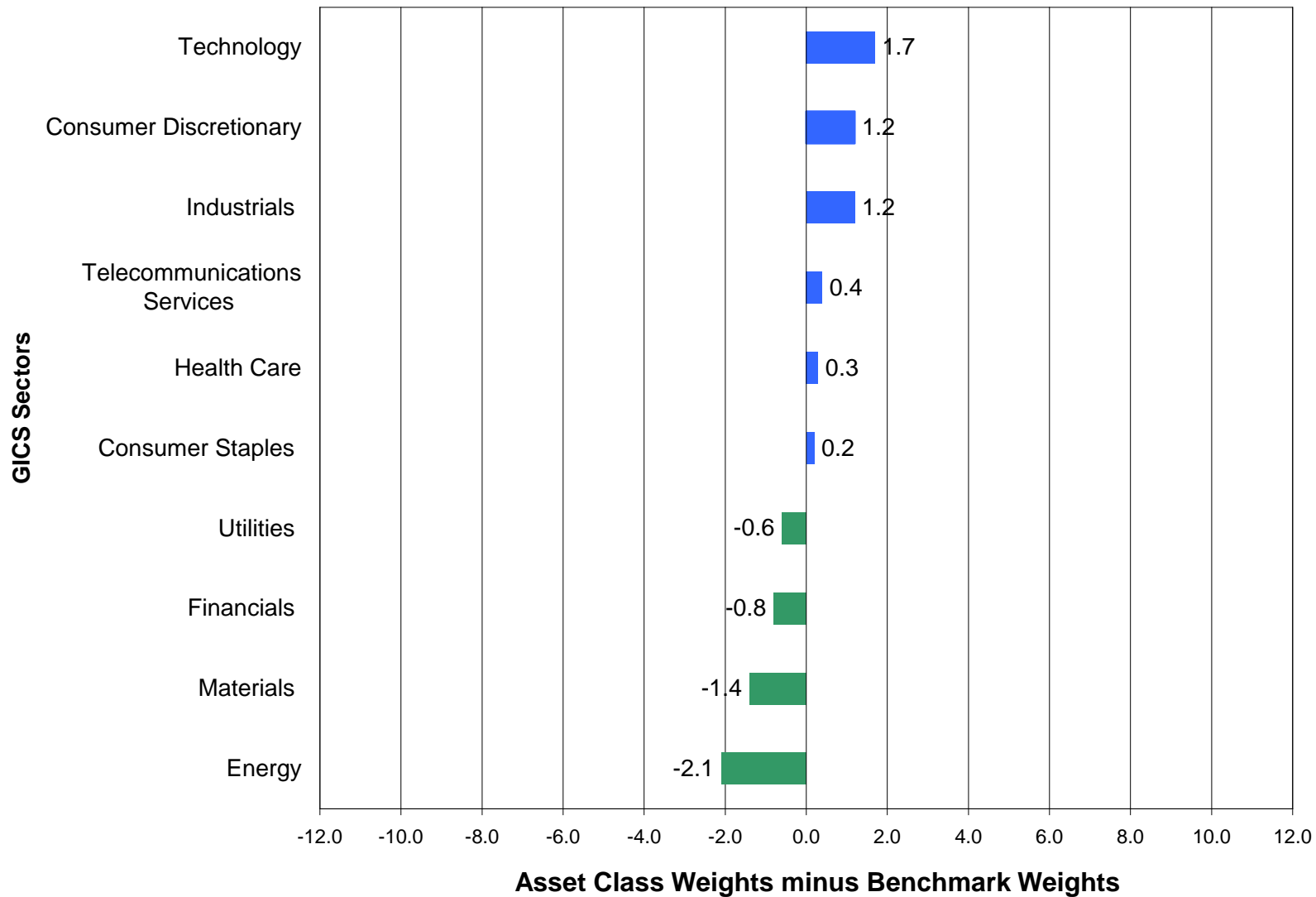
## Positions: Style Analysis – Portfolio Style Skyline

Total Fund Mid Cap Equity

As of September 30, 2007



**Positions: Economic Sectors**  
**ASRS U.S. Equity Mid Cap Asset Class**  
**As of September 30, 2007**



Reflects all passive and active portfolios

# **U.S. Equity Mid Cap Manager Reviews (Individual)**

## Franklin Portfolio Associates

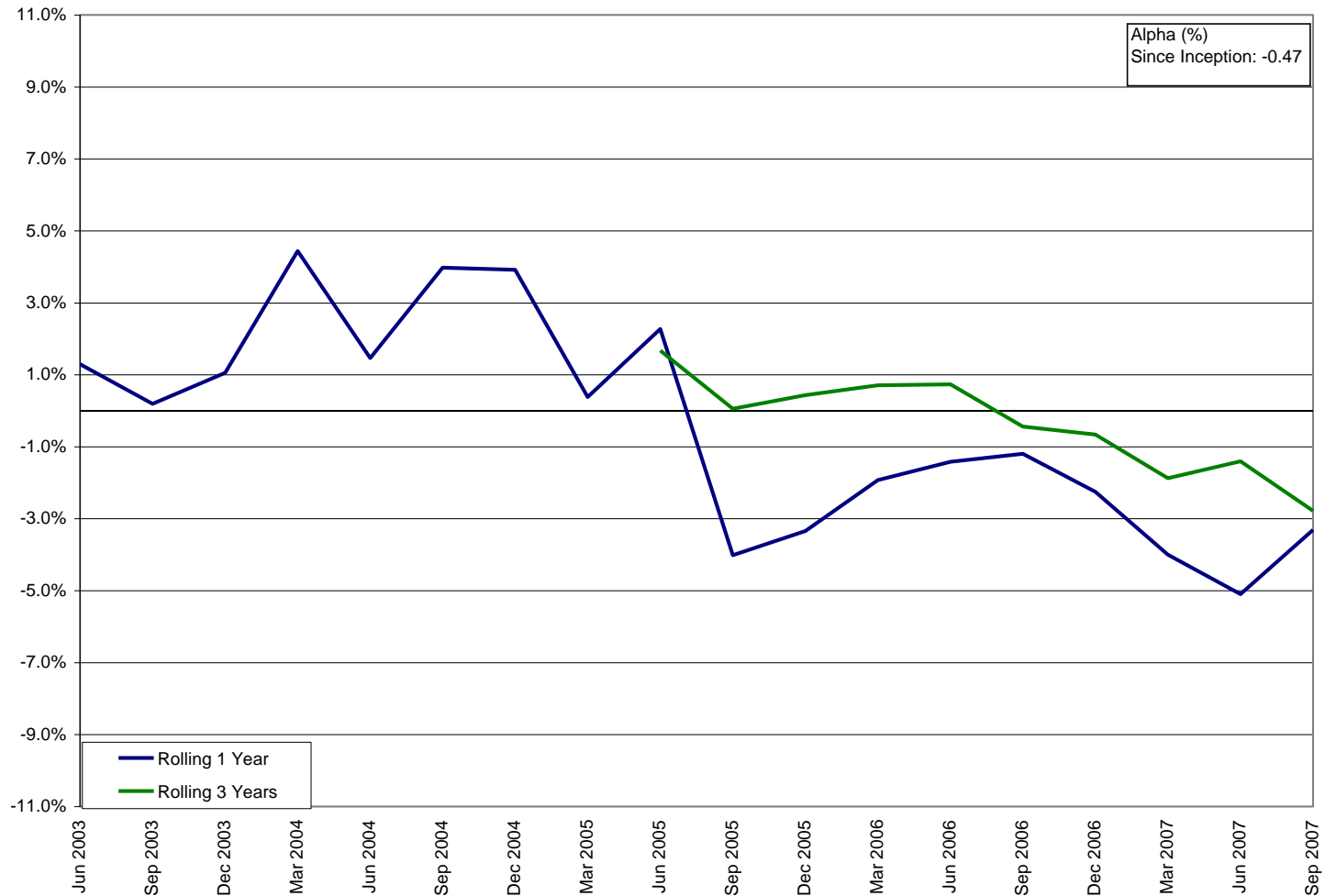
### Qualitative Factors

Factors	Description
People	<ul style="list-style-type: none"> <li>• Research and portfolio management are combined functions. All portfolio managers are involved in ongoing research to improve stock ranking and implementation processes.</li> <li>• Portfolio management is a team function - portfolio managers do not specialize by strategy, and all stock selection relies on the same underlying stock ranking process.</li> </ul>
Philosophy	<ul style="list-style-type: none"> <li>• Believe that security mispricings occur continually in the market and that undervalued securities can be identified using quantitative computer models.</li> </ul>
Process	<ul style="list-style-type: none"> <li>• Valuation and growth/momentum characteristics are approximately equal weighted at 45%, management signals make up the remaining 10%.</li> <li>• The impact of sector, size and style are minimized.</li> <li>• Stock ranking model consists of over 40 individual factors, which independently rank stocks. Weights are then assigned to the individual factors to produce a composite weighting that forecasts a stock's potential relative return 3-6 months into the future.</li> <li>• A proprietary process is used to remove industry/style effects that distort a fair comparison across a wide universe of securities.</li> <li>• Portfolios are rebalanced using a Barra optimizer.</li> </ul>

# Alpha

## Franklin Portfolio Associates

Inception Date June 30, 2002 - Period Ending September 30, 2007

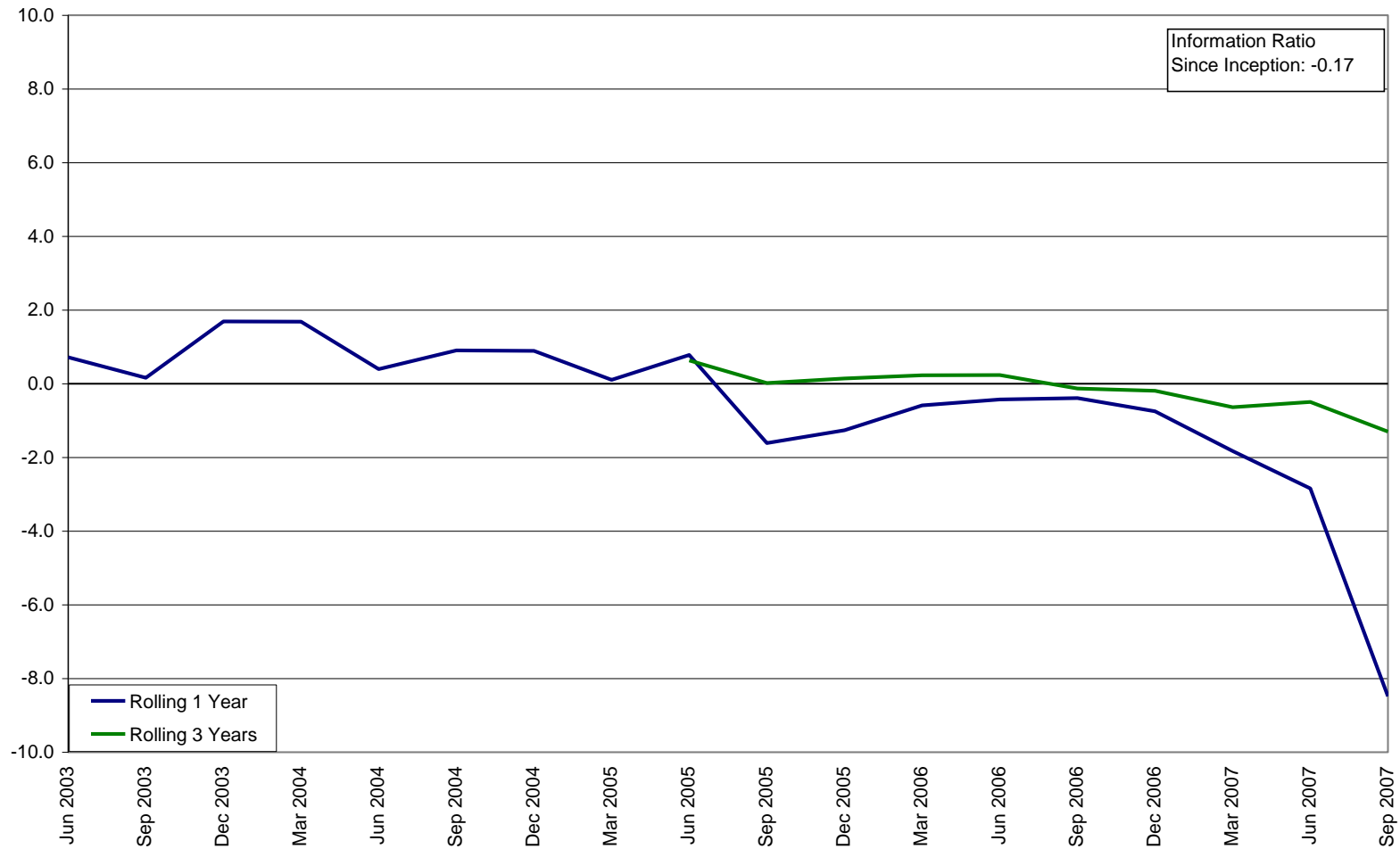


Calculated quarterly

# Information Ratio

## Franklin Portfolio Associates

Inception Date June 30, 2002 - Period Ending September 30, 2007



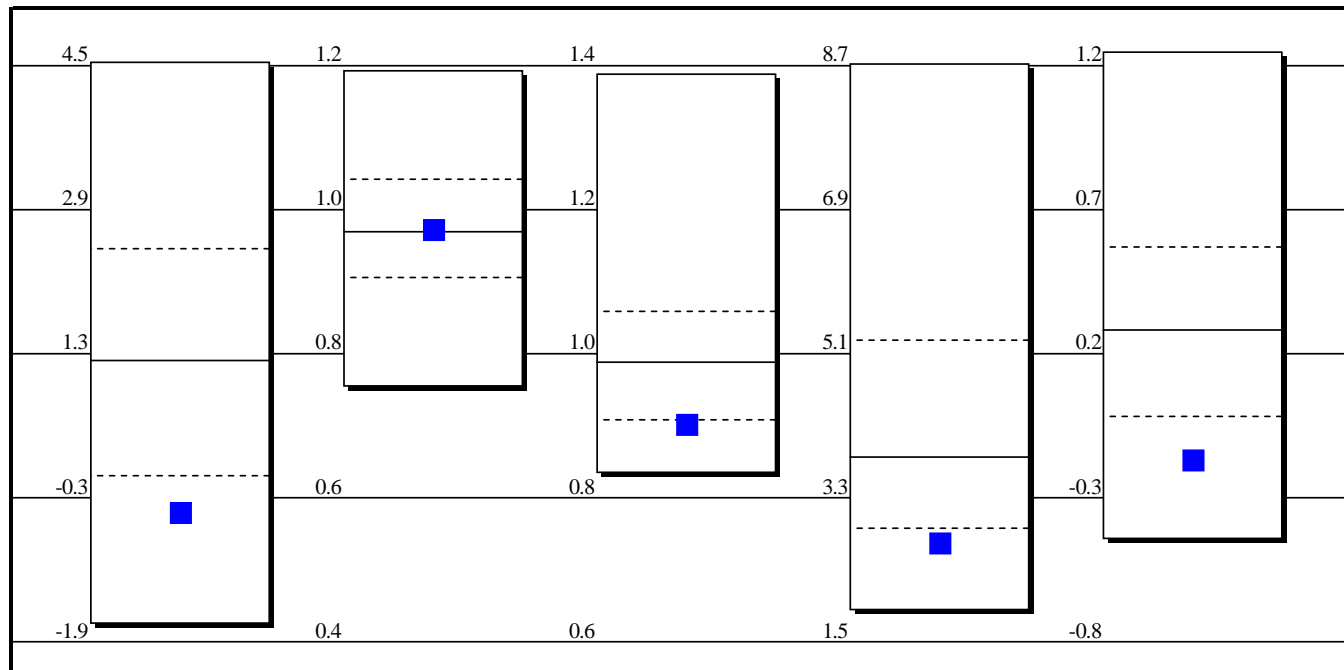
Calculated quarterly



# Peer Comparison with the Mercer U.S. Equity Mid Cap Core Universe

## Franklin Portfolio Associates

Inception Date June 30, 2002 - Period Ending September 30, 2007



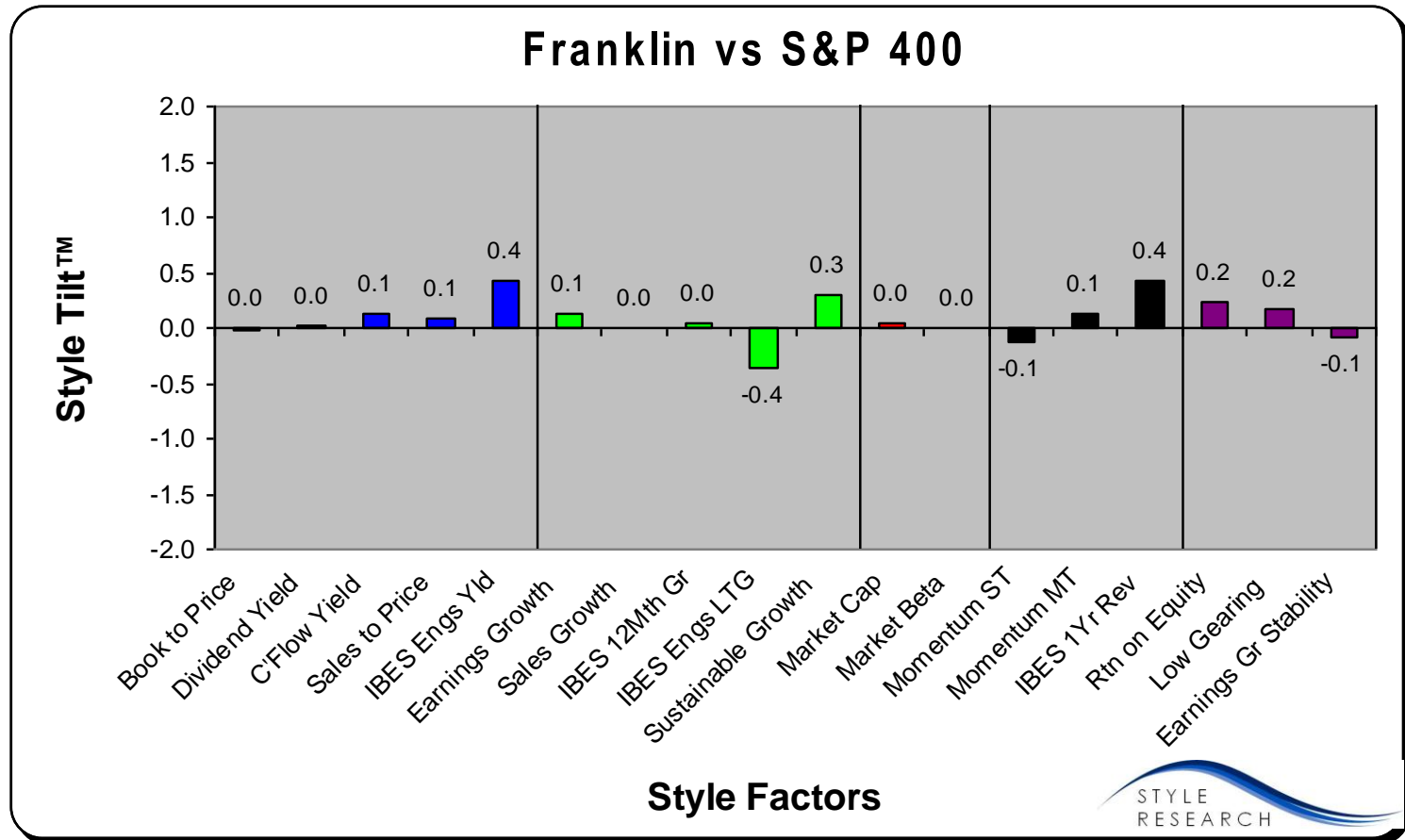
	Excess Return (% pa)	Beta	Reward to Risk	Tracking Error (% pa)	Information Ratio
FPA	-0.47 (86)	0.97 (46)	0.90 (76)	2.73 (78)	-0.17 (87)
5th Percentile	4.53	1.19	1.39	8.72	1.24
Upper Quartile	2.46	1.04	1.06	5.27	0.57
Median	1.22	0.97	0.99	3.79	0.28
Lower Quartile	-0.07	0.90	0.91	2.92	-0.02
95th Percentile	-1.70	0.75	0.83	1.89	-0.45
Number of Funds	37	37	37	37	37

Risk and Return Characteristics calculated quarterly versus S&P Mid Cap 400

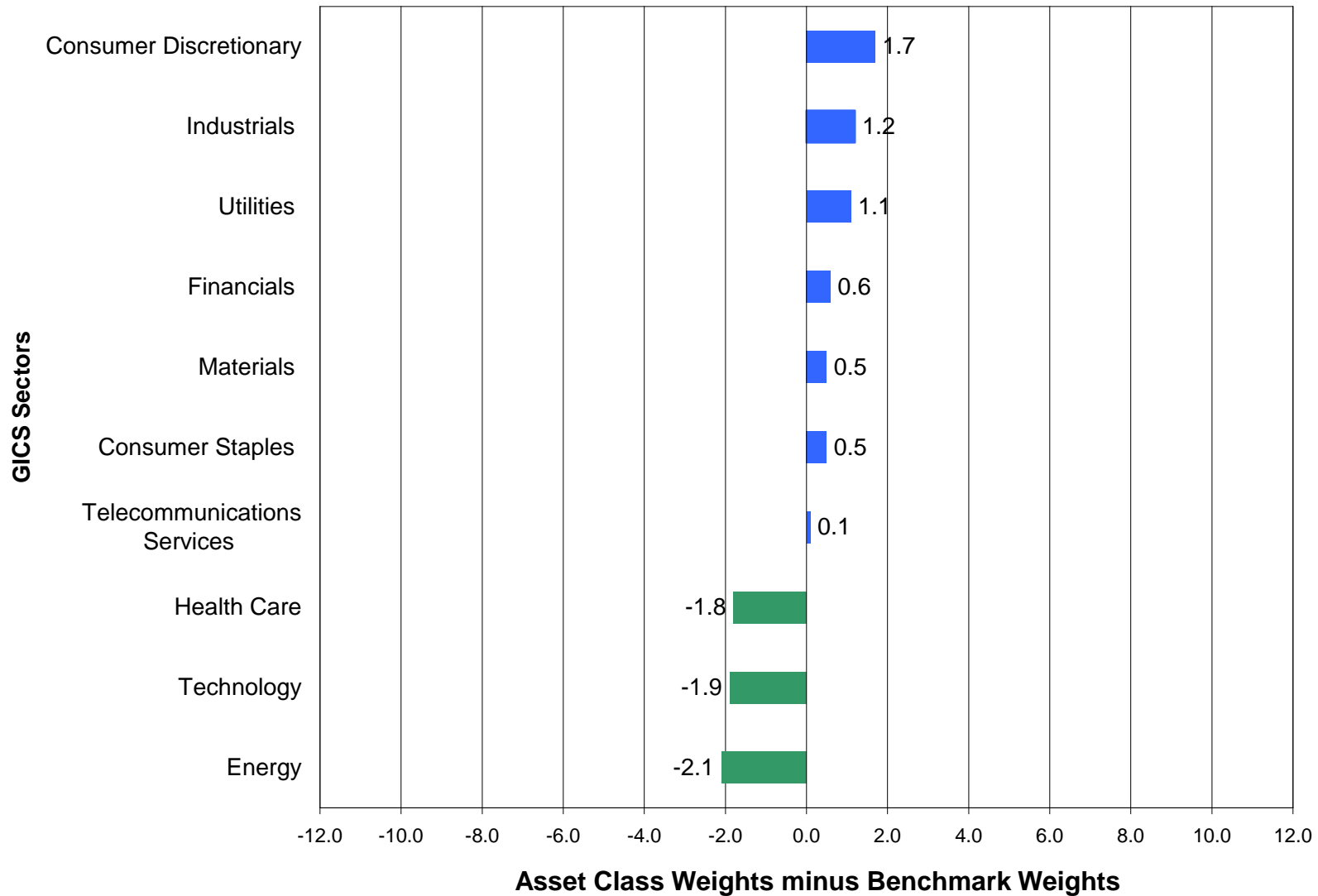
# Positions: Style Analysis – Portfolio Style Skyline

Franklin Portfolio Associates

As of September 30, 2007



**Positions: Economic Sectors**  
Franklin Portfolio Associates Mid Cap  
As of September 30, 2007

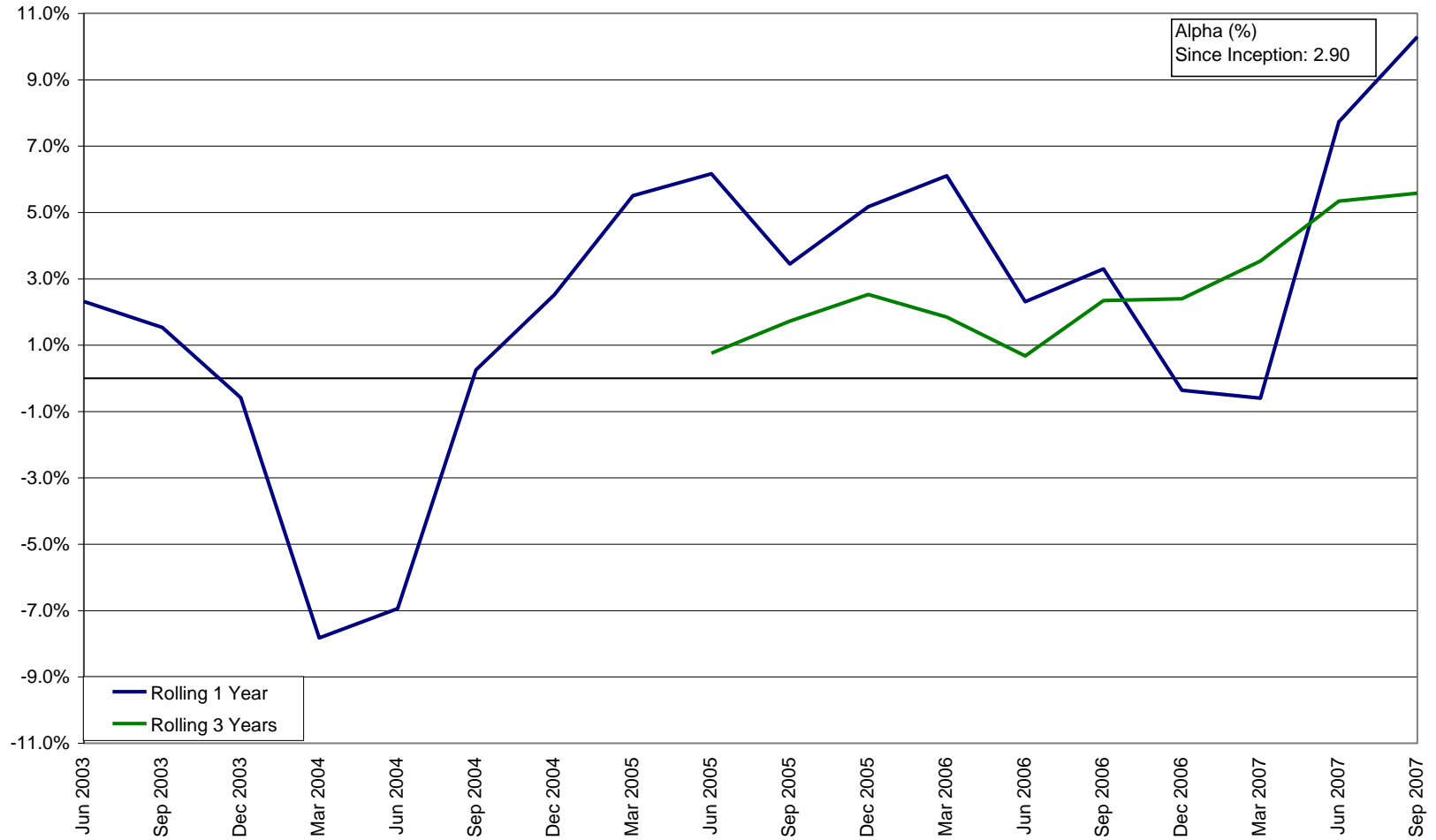


## Wellington Qualitative Factors

Factors	Description
People	<ul style="list-style-type: none"> <li>• Portfolio manager, Phil Perelmuter, is a key strength to the product and has been with Wellington since 1995.</li> <li>• Perelmuter is backed by an assistant portfolio manager and dedicated team of analysts.</li> <li>• Stable team of industry analysts average 16 years experience; 10 years with Wellington.</li> </ul>
Philosophy	<ul style="list-style-type: none"> <li>• Wellington believes investing in high quality, established mid cap companies with good balance sheets, strong management teams and market leadership within their respective industry will lead to superior performance.</li> <li>• The Mid Cap Opportunities product invests in: quality, diversification and purity.</li> </ul>
Process	<ul style="list-style-type: none"> <li>• Investment ideas are macro themes generated from financial publications, analysts and bottom-up research. Often these themes can exhibit strong growth which may give the portfolio a growth bias at times.</li> <li>• Will buy a stock when it is determined upside potential is twice the downside risk.</li> <li>• Look for names with accelerating revenue growth, accelerating earnings growth, high market share, quality balance sheets, strong management teams and names that have all the bad news out.</li> <li>• Portfolio consists of 75% ‘core holdings’ and 25% ‘opportunistic holdings.’ The ‘opportunistic holdings’ have a slight value tilt and are statistically cheap, but have a strong possibility of appreciating in the next 6-12 months.</li> </ul>

# Alpha Wellington

Inception Date June 30, 2002 - Period Ending September 30, 2007



Calculated quarterly

# Information Ratio Wellington

Inception Date June 30, 2002 - Period Ending September 30, 2007

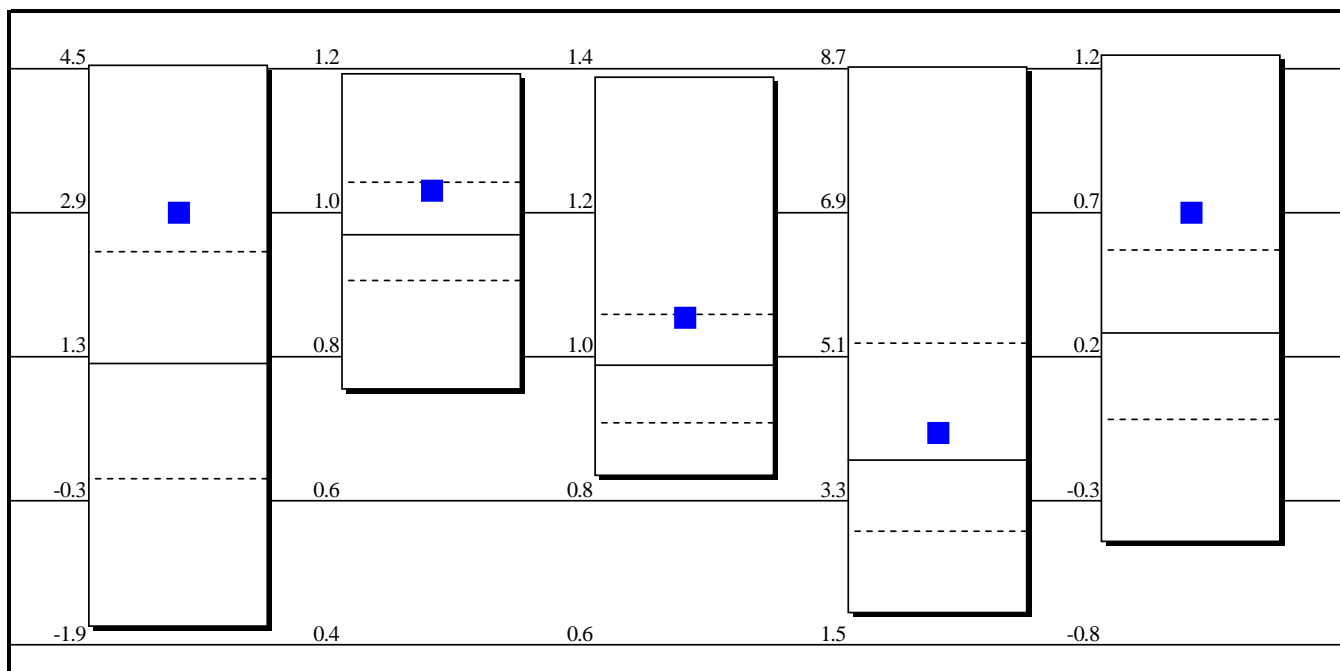


Calculated quarterly

# Peer Comparison with the Mercer U.S. Equity Mid Cap Core Universe

## Wellington

Inception Date June 30, 2002 - Period Ending September 30, 2007



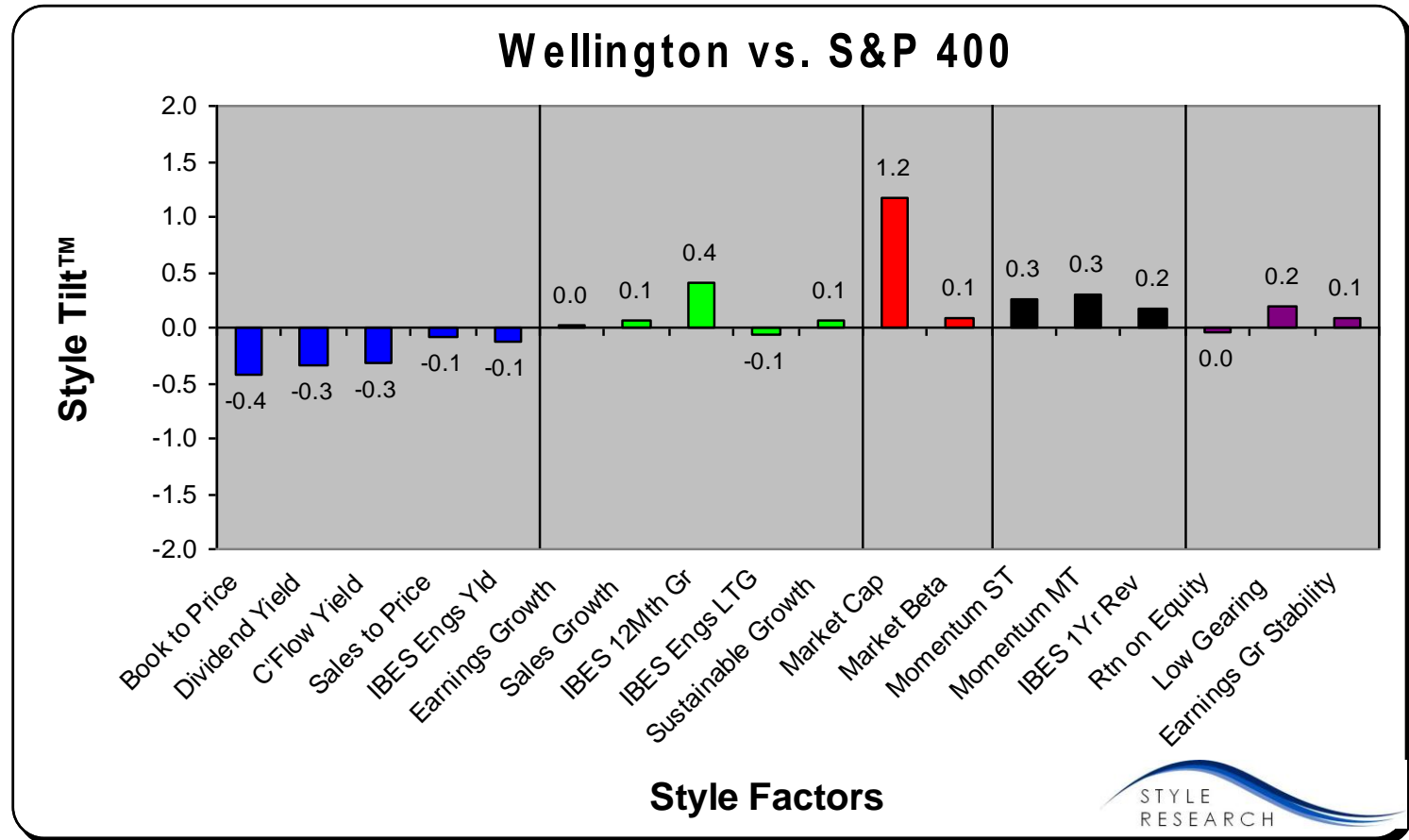
	Excess Return (% pa)	Beta	Reward to Risk	Tracking Error (% pa)	Information Ratio
Wellington	2.90 (22)	1.03 (29)	1.05 (28)	4.15 (45)	0.70 (14)
5th Percentile	4.53	1.19	1.39	8.72	1.24
Upper Quartile	2.46	1.04	1.06	5.27	0.57
Median	1.22	0.97	0.99	3.79	0.28
Lower Quartile	-0.07	0.90	0.91	2.92	-0.02
95th Percentile	-1.70	0.75	0.83	1.89	-0.45
Number of Funds	37	37	37	37	37

Risk and Return Characteristics calculated quarterly versus S&P Mid Cap 400

# Positions: Style Analysis – Portfolio Style Skyline

Wellington

As of September 30, 2007

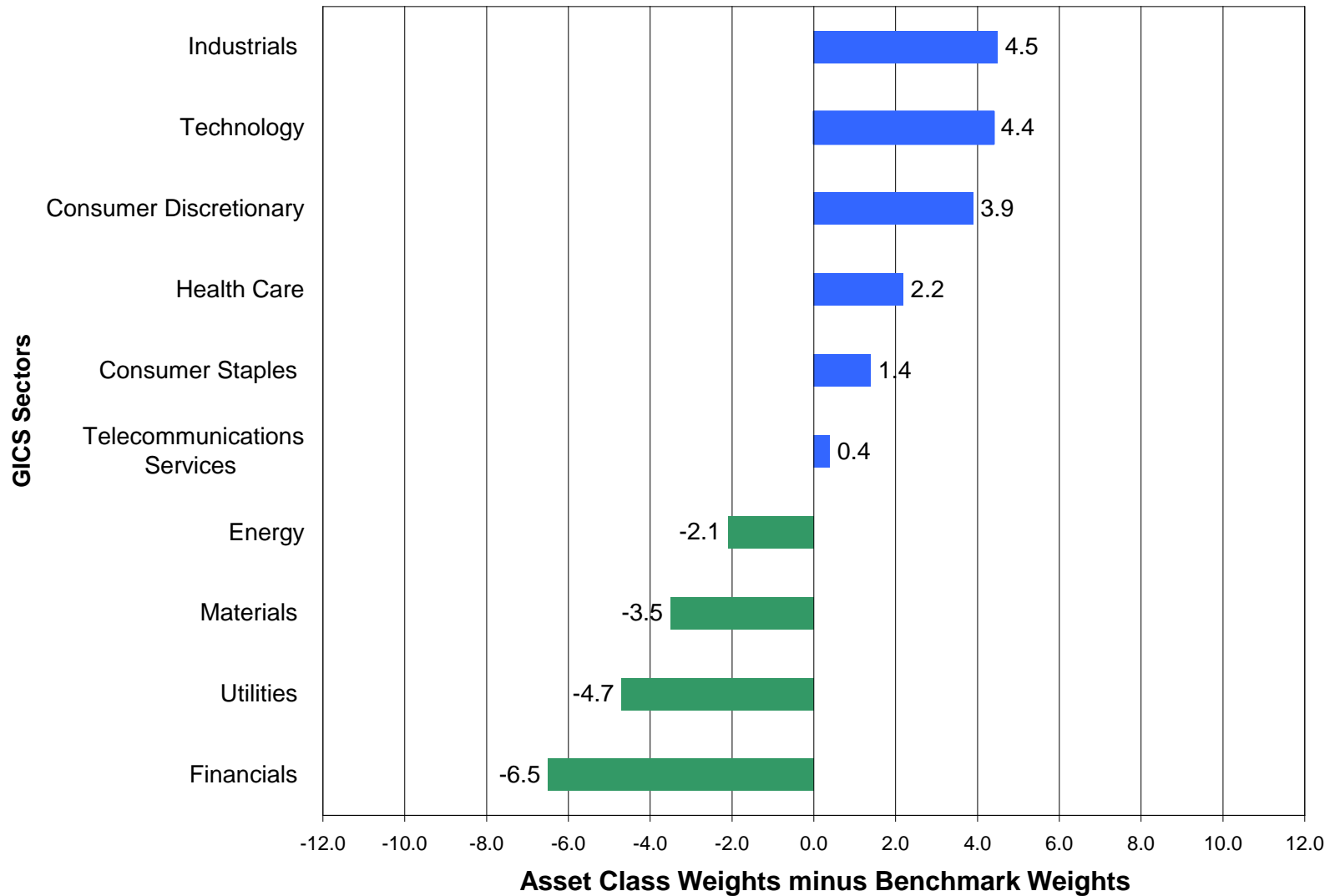




# Positions: Economic Sectors

Wellington

As of September 30, 2007

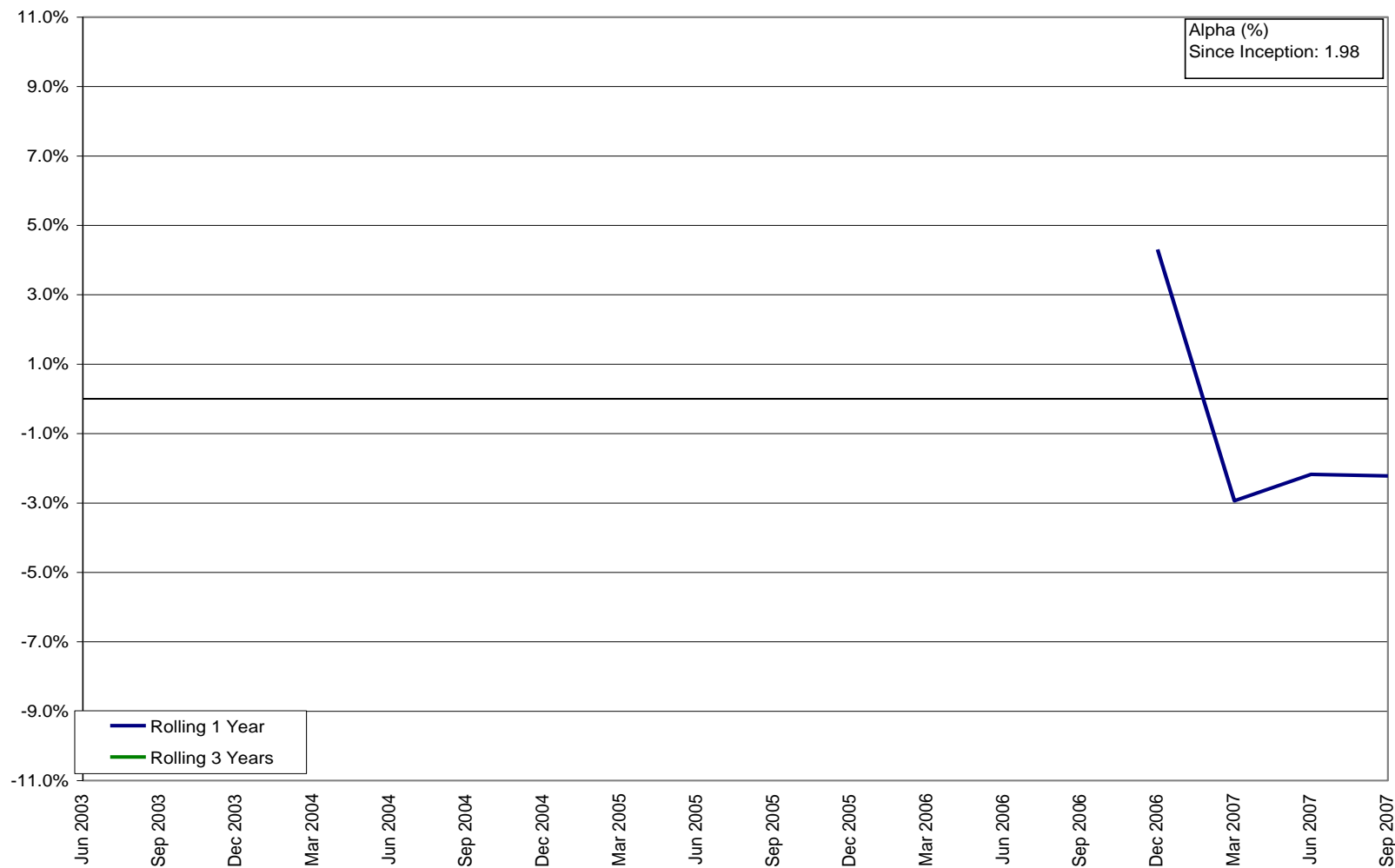


## NorthPointe Qualitative Factors

Factors	Description
People	<ul style="list-style-type: none"> <li>• NorthPointe employs a team approach to portfolio management. Two portfolio managers are supported by three fundamental research analysts and a quantitative team.</li> </ul>
Philosophy	<ul style="list-style-type: none"> <li>• Strongly believe a company's earnings drive pricing inefficiencies and that the market will eventually reward companies with consistent and real earnings.</li> <li>• Seek to invest in companies selling at a discount to their long-term growth rate.</li> </ul>
Process	<ul style="list-style-type: none"> <li>• Fundamental analysis is critical to the approach.</li> <li>• Focus on information from company meetings and input from Wall Street and research boutique firms to assess the quality growth characteristics of companies.</li> <li>• Quantitative screens narrow a universe of stocks to those companies identified as having consistent earnings growth, high return on equity and strong balance sheets.</li> <li>• NorthPointe looks for companies with a sustainable competitive advantage that are gaining market share and have substantial recurring revenues.</li> <li>• Growth investing with a valuation overlay (GARP) style.</li> </ul>

# Alpha NorthPointe

November 30, 2005 - Period Ending September 30, 2007

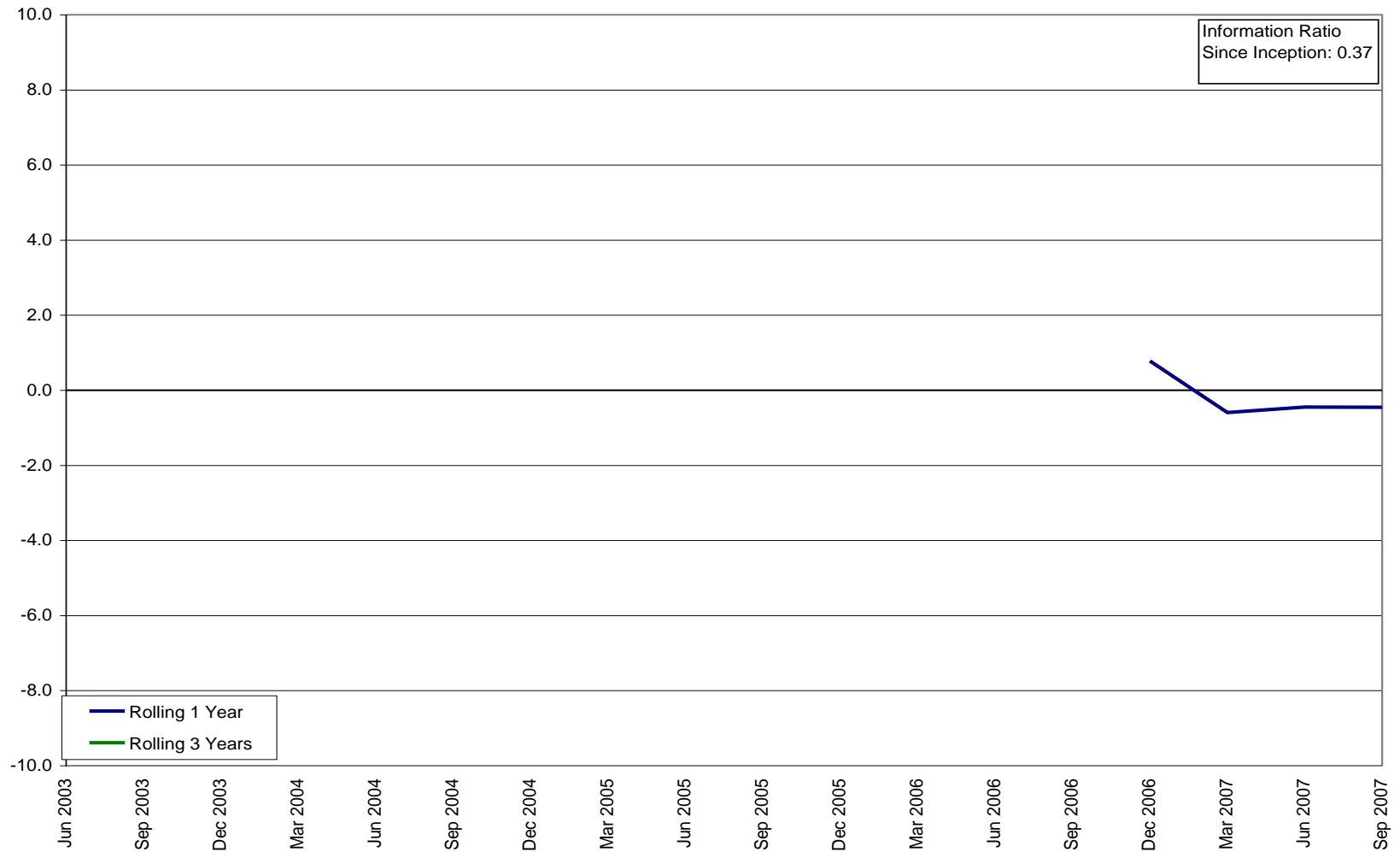


Calculated quarterly

# Information Ratio

## NorthPointe

November 30, 2005 - Period Ending September 30, 2007

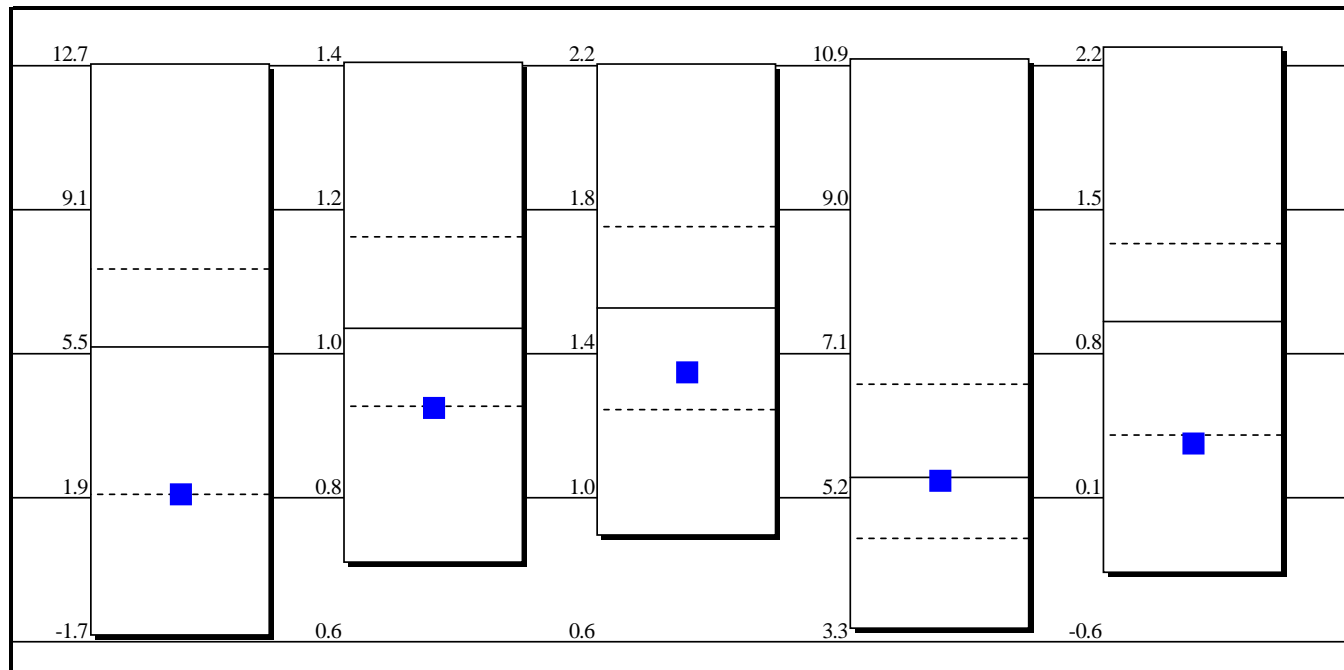


Calculated quarterly

# Peer Comparison with the Mercer U.S. Equity Mid Cap Growth Universe

## NorthPointe

Inception Date November 30, 2005 - Period Ending September 30, 2007



	Excess Return (% pa)	Beta	Reward to Risk	Tracking Error (% pa)	Information Ratio
NorthPointe	1.98 (75)	0.93 (75)	1.35 (65)	5.43 (53)	0.37 (76)
5th Percentile	12.70	1.40	2.20	10.97	2.28
Upper Quartile	7.61	1.16	1.75	6.68	1.33
Median	5.66	1.03	1.52	5.46	0.95
Lower Quartile	1.98	0.93	1.24	4.65	0.40
95th Percentile	-1.57	0.71	0.90	3.44	-0.27
Number of Funds	98	98	98	98	98

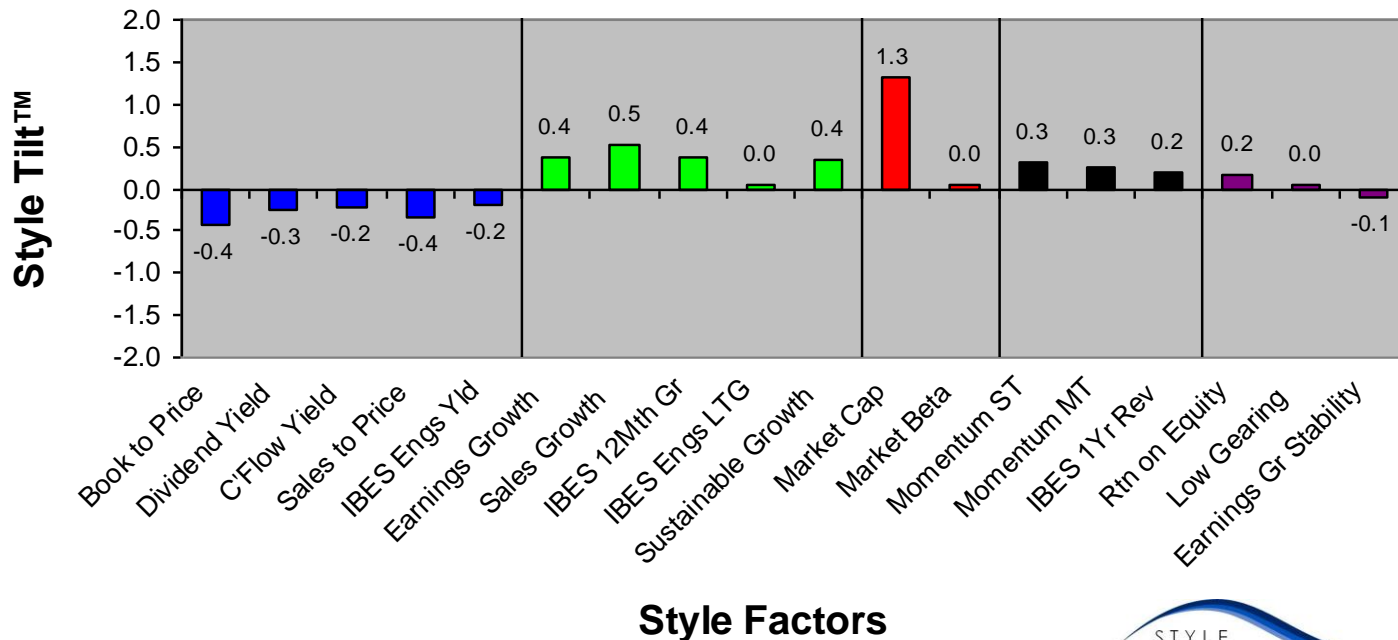
Risk and Return Characteristics calculated quarterly versus S&P Mid Cap Growth Blended Benchmark  
Calculated Quarterly

# Positions: Style Analysis – Portfolio Style Skyline

North Pointe

As of September 30, 2007

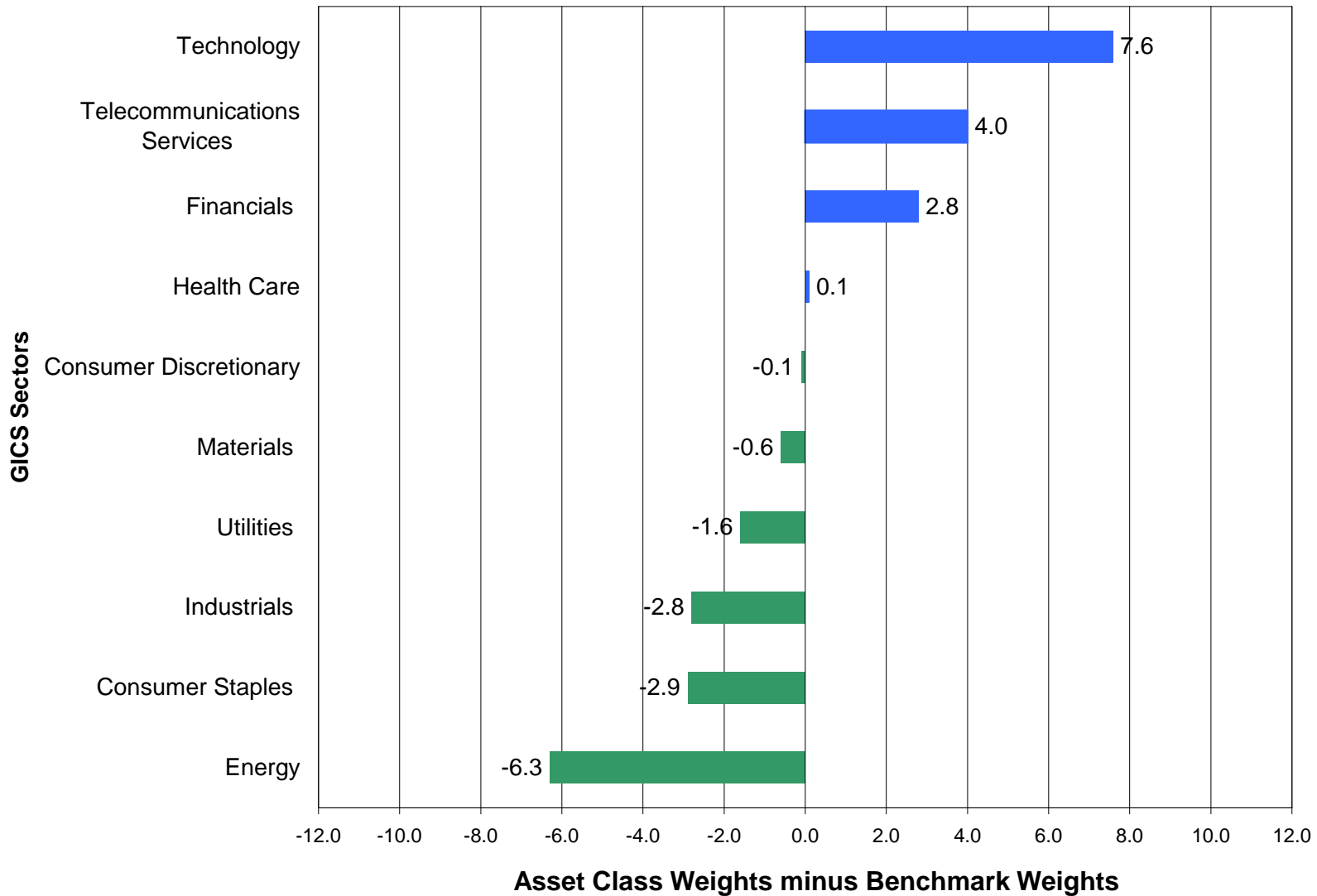
## North Pointe vs S&P 400 Growth



# Positions: Economic Sectors

NorthPointe

As of September 30, 2007



## CRM

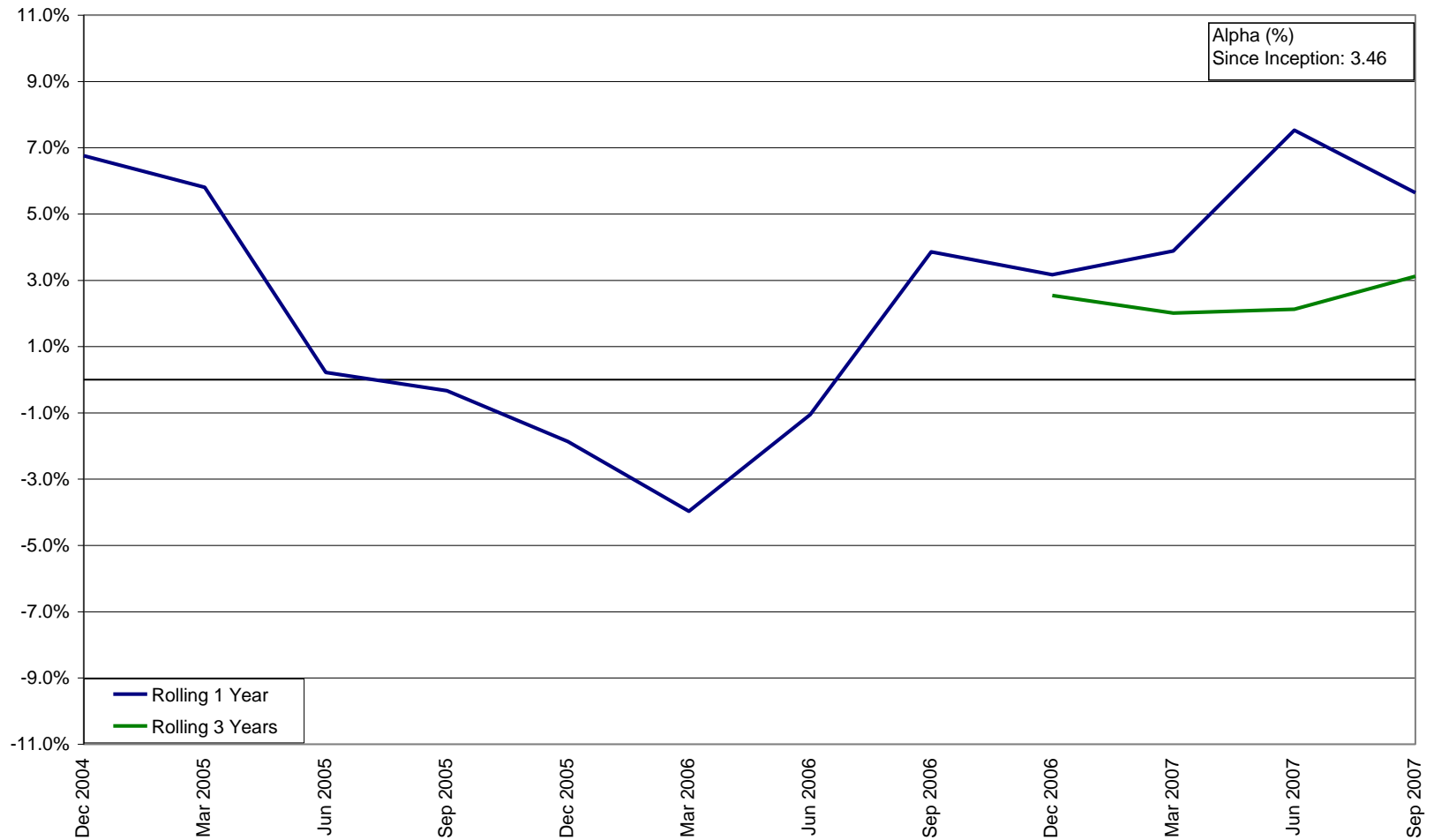
### Qualitative Factors

Factors	Description
People	<ul style="list-style-type: none"> <li>• Two co-portfolio managers are the primary decision makers, but the process is very team oriented. Analysts are key to determining the weighting of names in the portfolio.</li> <li>• Highly experienced team of sector-specialized analysts all use the same blueprint when researching stocks.</li> </ul>
Philosophy	<ul style="list-style-type: none"> <li>• Believe that opportunities exist in under-followed, out-of-favor companies that are undergoing strategic changes such as divestitures, new products, new management, mergers and acquisitions.</li> </ul>
Process	<ul style="list-style-type: none"> <li>• Screen for stocks with attractive liquidity characteristics that are mispriced in the market.</li> <li>• Attempt to identify a dynamic change that is material to the operations of the company.</li> <li>• Produce financial models based upon projected cash flows.</li> <li>• Monitor the number of opinions of sell side analysts who closely follow the company and the nature of the shareholder base.</li> <li>• Set a price target for every name in the portfolio.</li> <li>• Use “mosaic theory” approach to investment management.</li> </ul>



# Alpha CRM

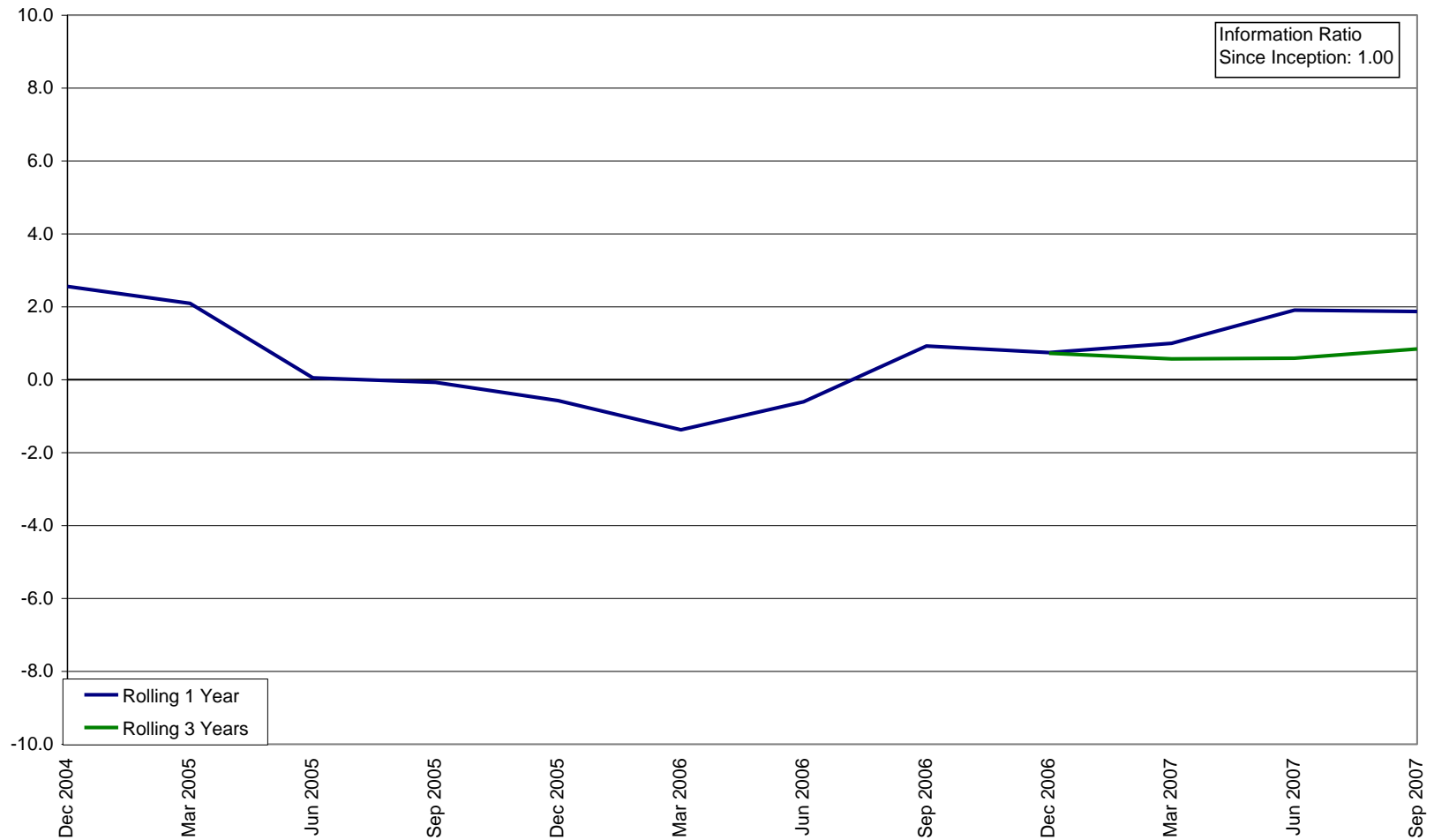
Inception Date December 31, 2003 - Period Ending September 30, 2007



Calculated quarterly

# Information Ratio CRM

Inception Date December 31, 2003 - Period Ending September 30, 2007

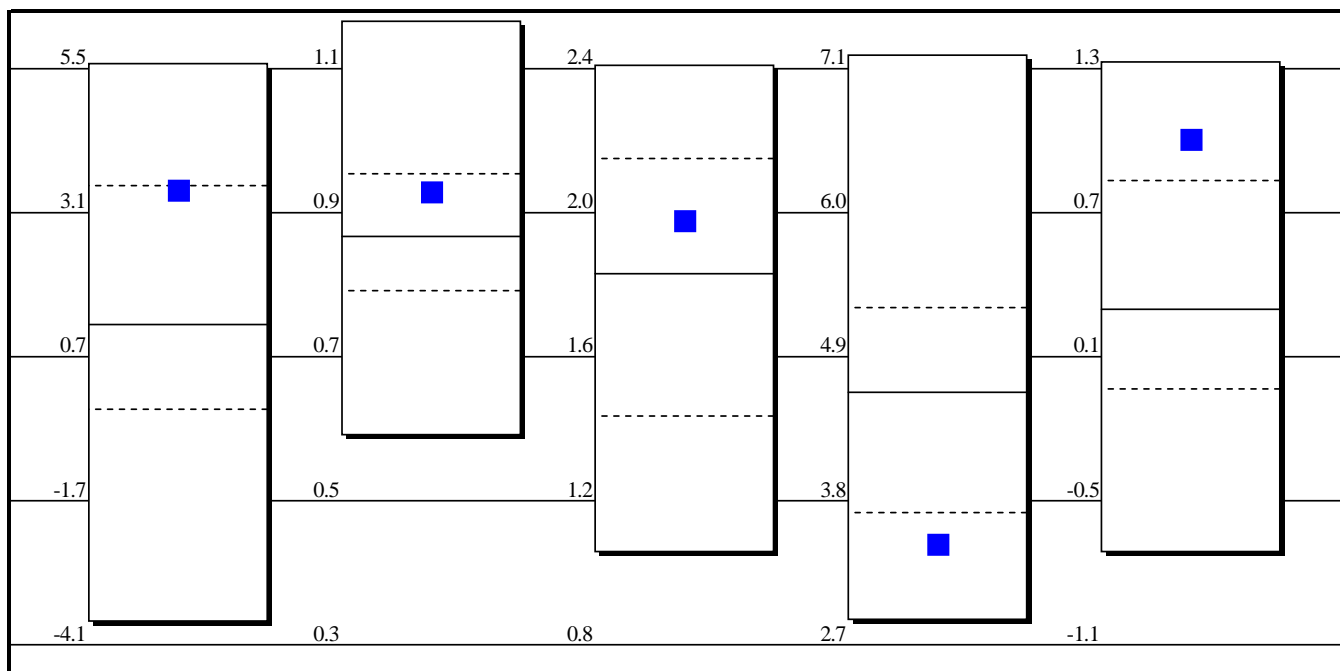


Calculated quarterly

# Peer Comparison with the Mercer U.S. Equity Mid Cap Value Universe

## CRM

Inception Date December 31, 2003 - Period Ending September 30, 2007



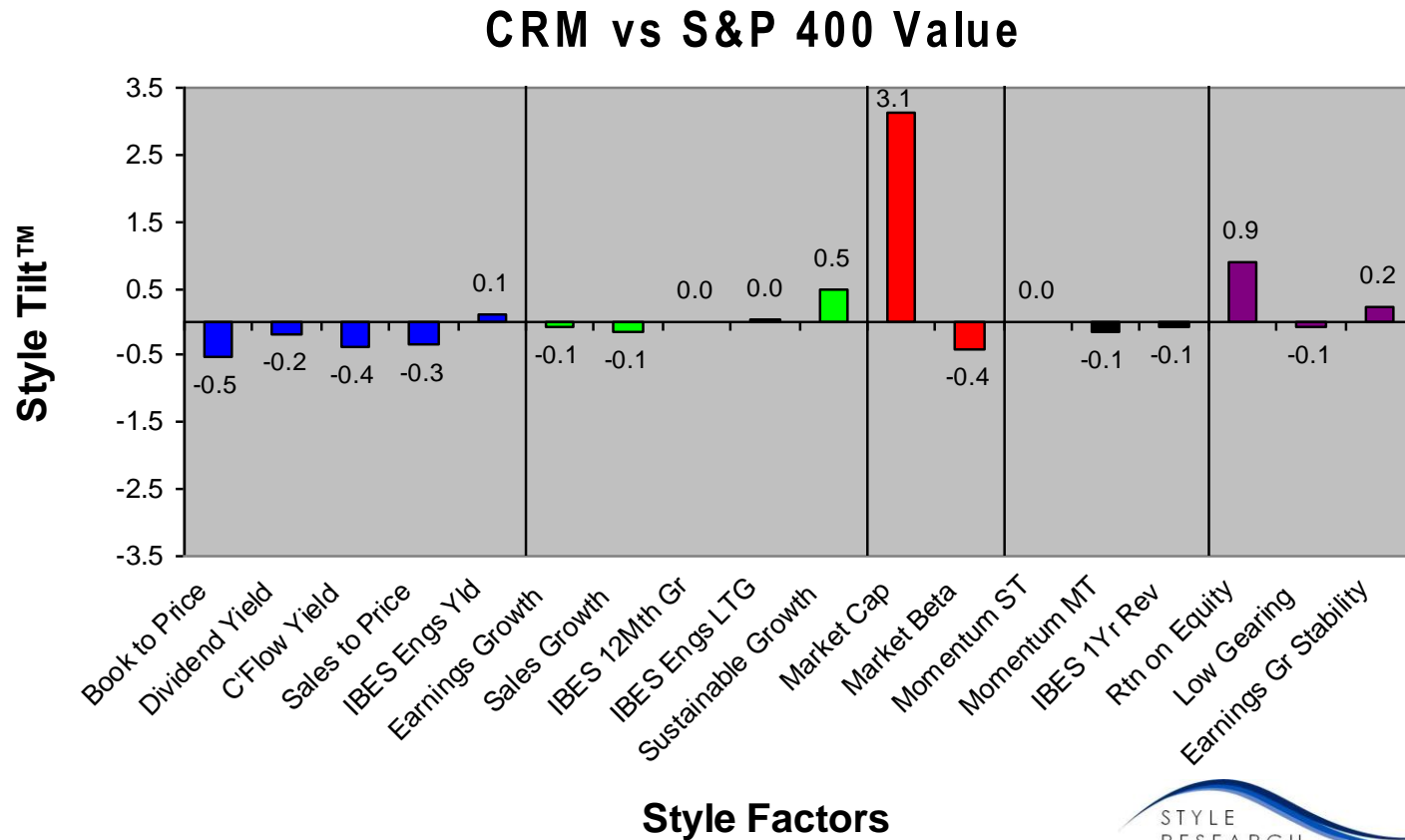
	Excess Return (% pa)	Beta	Reward to Risk	Tracking Error (% pa)	Information Ratio
CRM	3.46 (26)	0.93 (32)	1.98 (42)	3.46 (85)	1.00 (15)
5th Percentile	5.57	1.16	2.41	7.20	1.32
Upper Quartile	3.54	0.95	2.15	5.28	0.83
Median	1.23	0.87	1.83	4.62	0.29
Lower Quartile	-0.20	0.79	1.43	3.71	-0.04
95th Percentile	-3.73	0.59	1.06	2.88	-0.72
Number of Funds	82	82	82	82	82

Risk and Return Characteristics calculated quarterly versus S&P Mid Cap Value Blended Benchmark

# Positions: Style Analysis – Portfolio Style Skyline

CRM

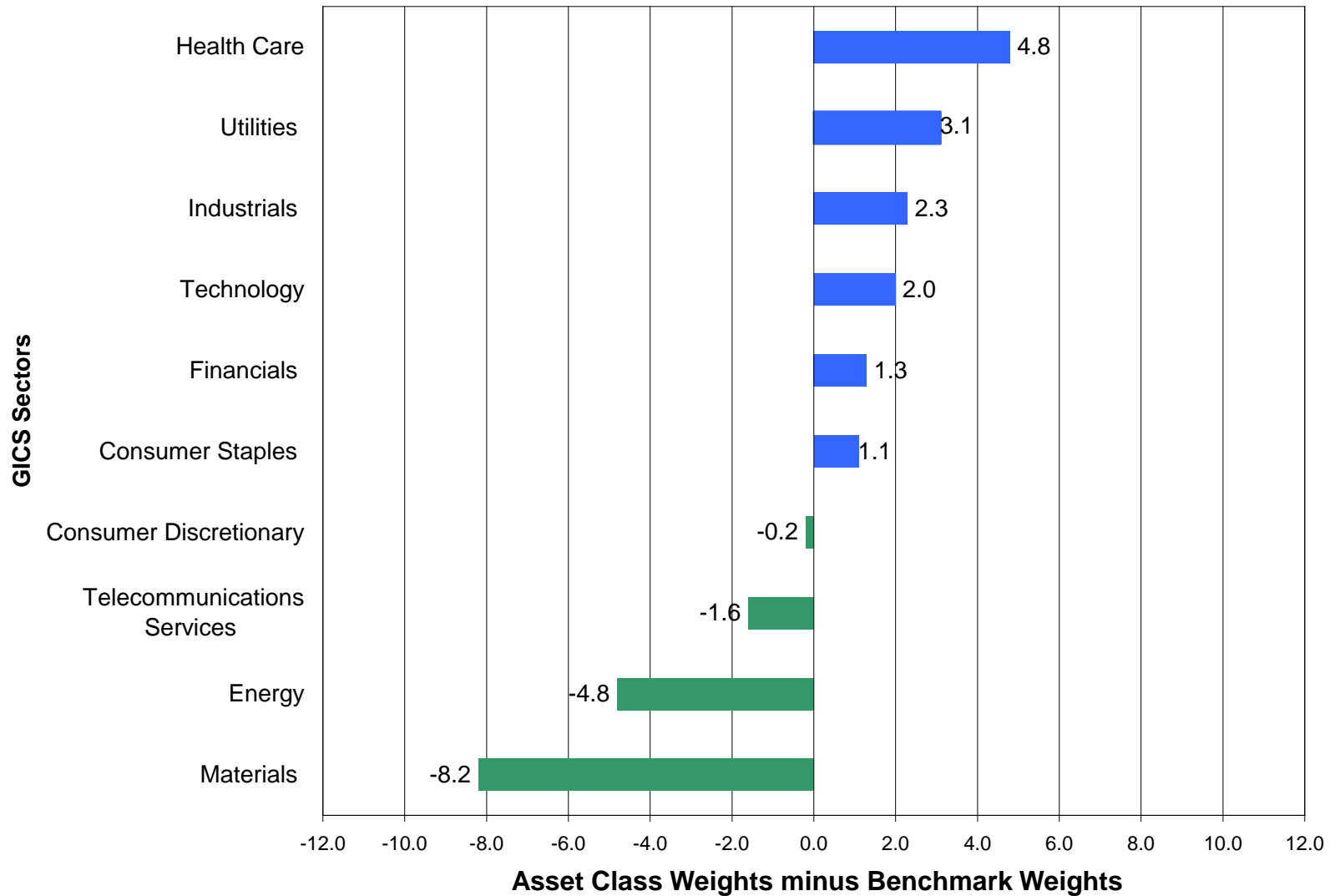
As of September 30, 2007



# Positions: Economic Sectors

CRM

As of September 30, 2007

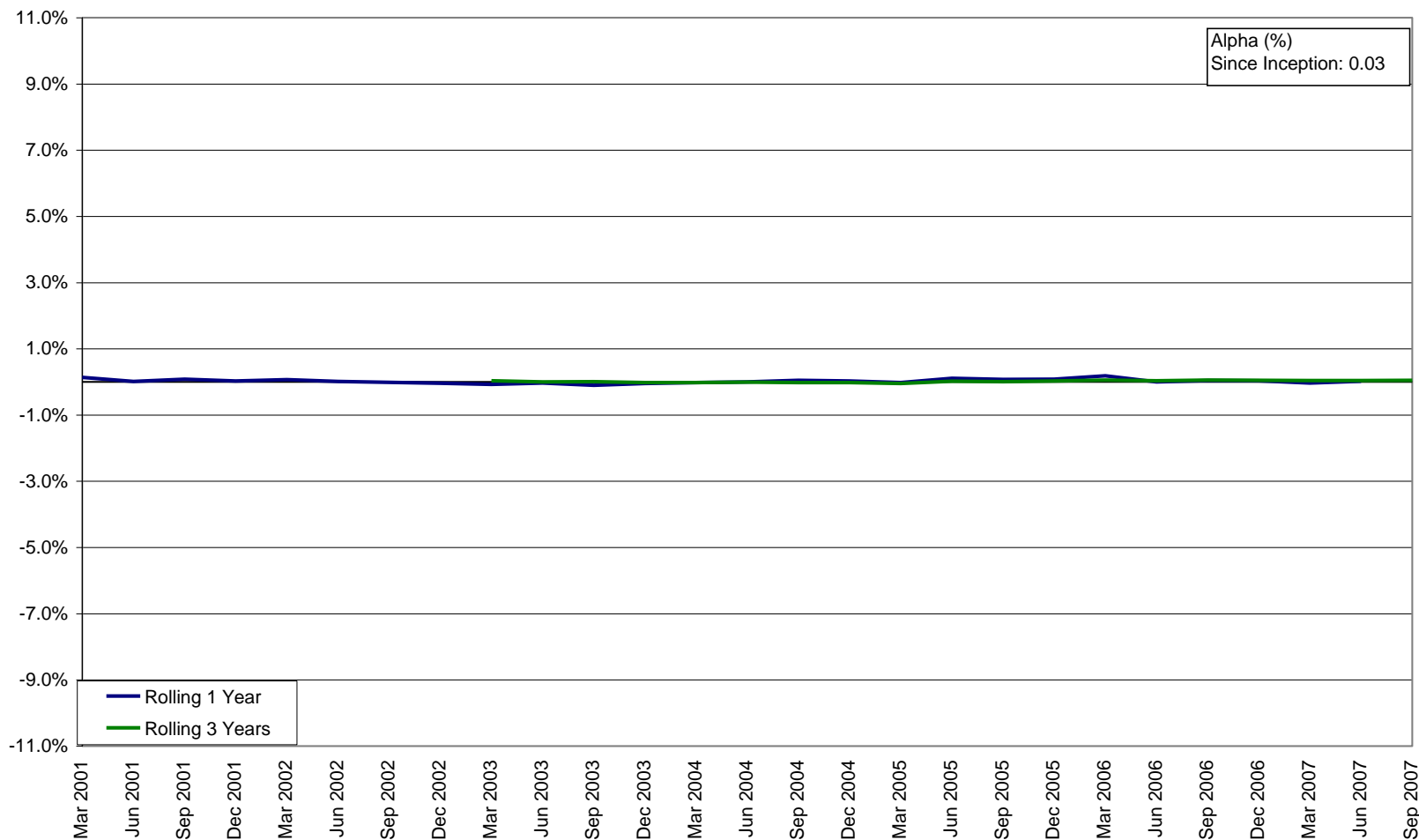


# ASRS Passive Mid Cap Managers

# Alpha

## SSgA

**Inception Date January 31, 2000 - Period Ending September 30, 2007**



Calculated quarterly

# Information Ratio SSgA

Inception Date January 31, 2000 - Period Ending September 30, 2007



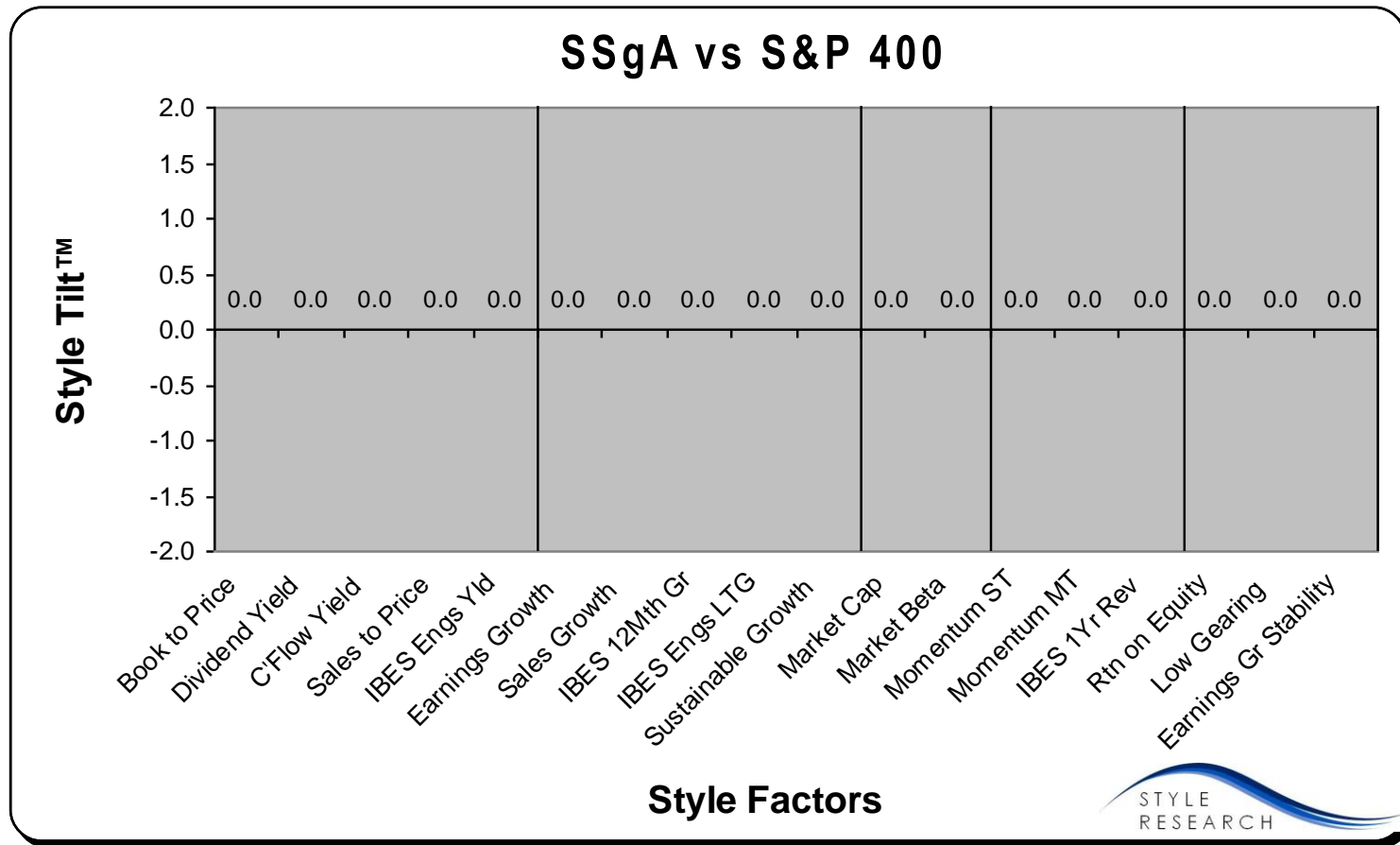
Calculated quarterly



# Positions: Style Analysis – Portfolio Style Skyline

SSgA

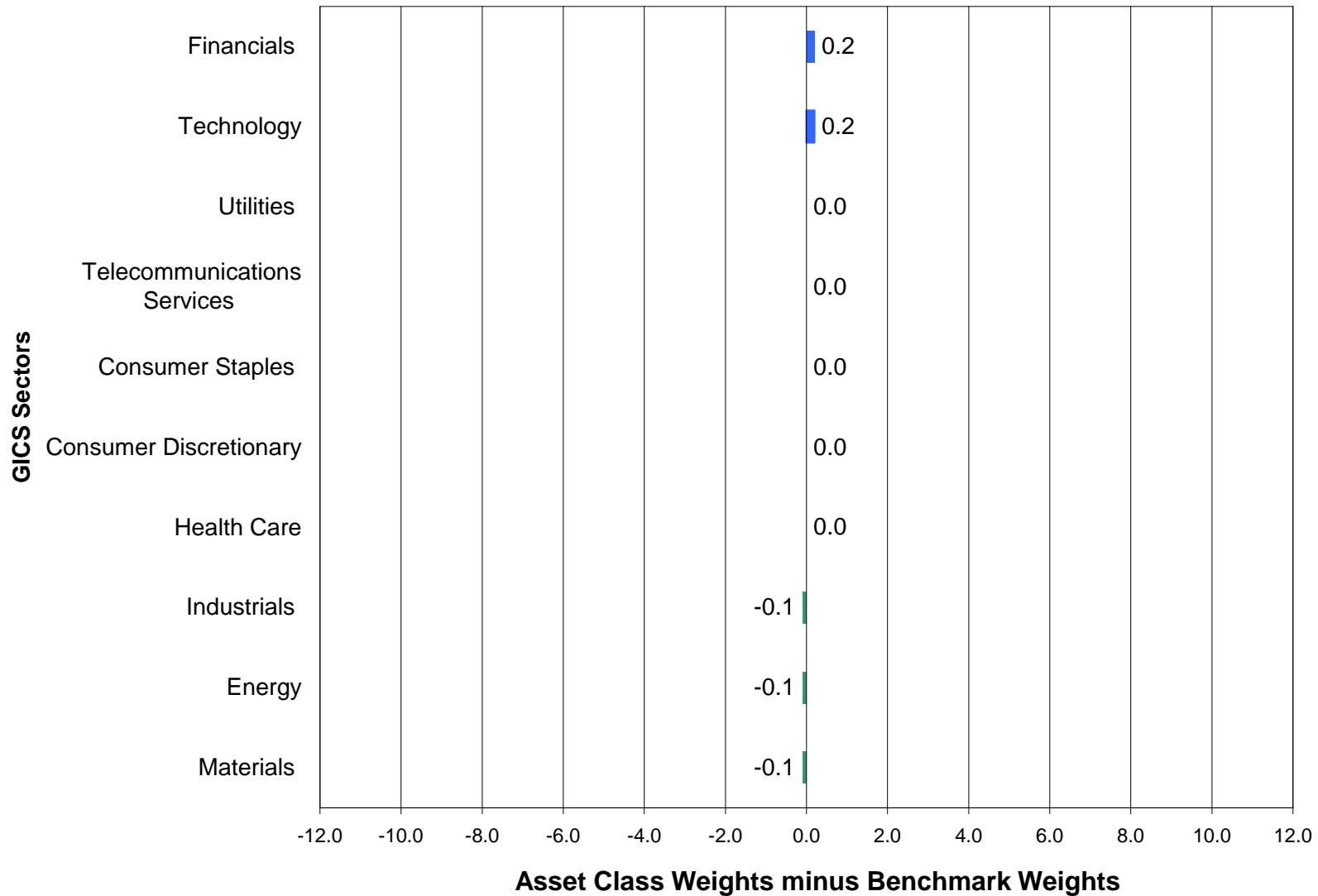
As of September 30, 2007



# Positions: Economic Sectors

SSgA

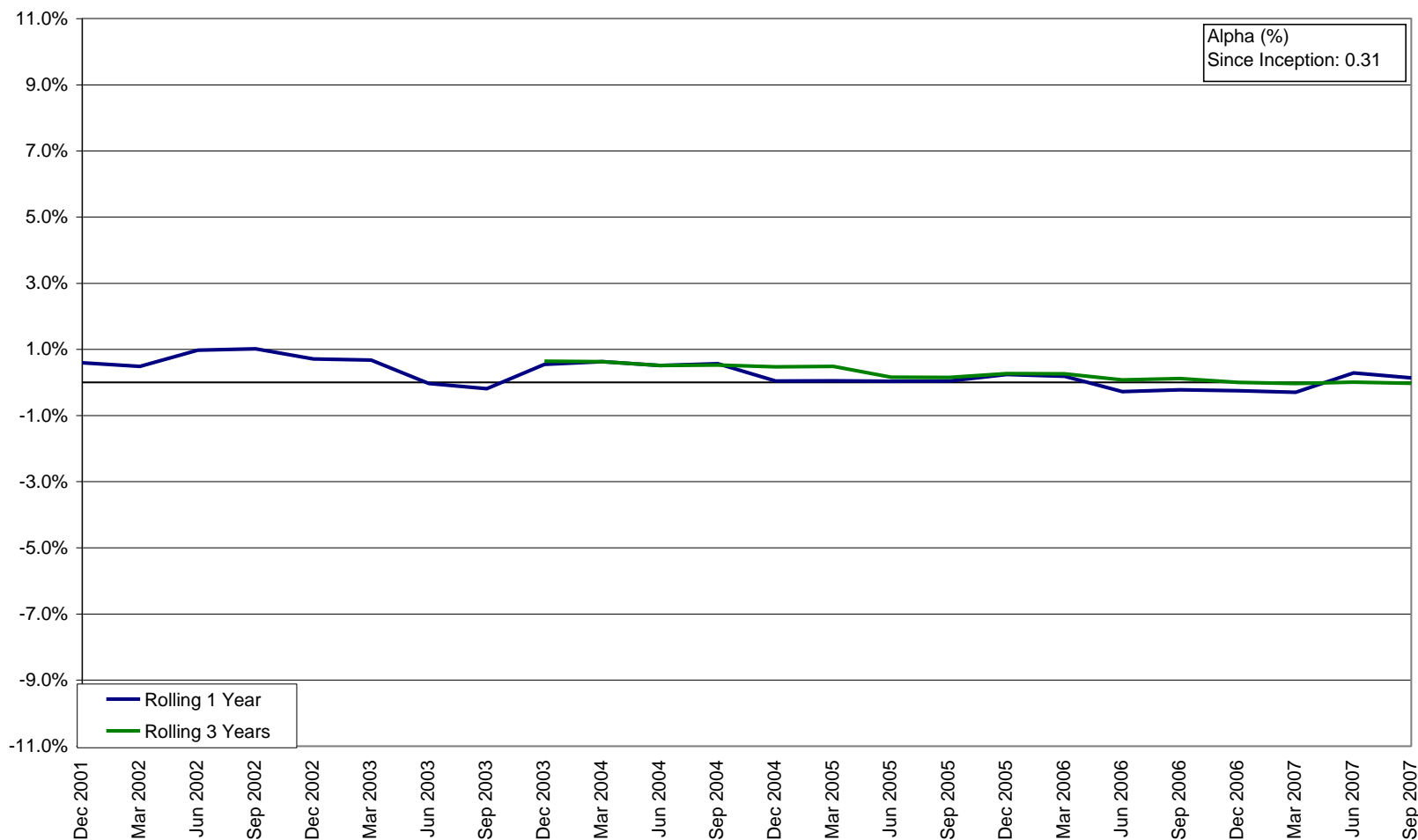
As of September 30, 2007



# Alpha

## Internally Managed ASRS E3

Inception Date November 30, 2000 - Period Ending September 30, 2007

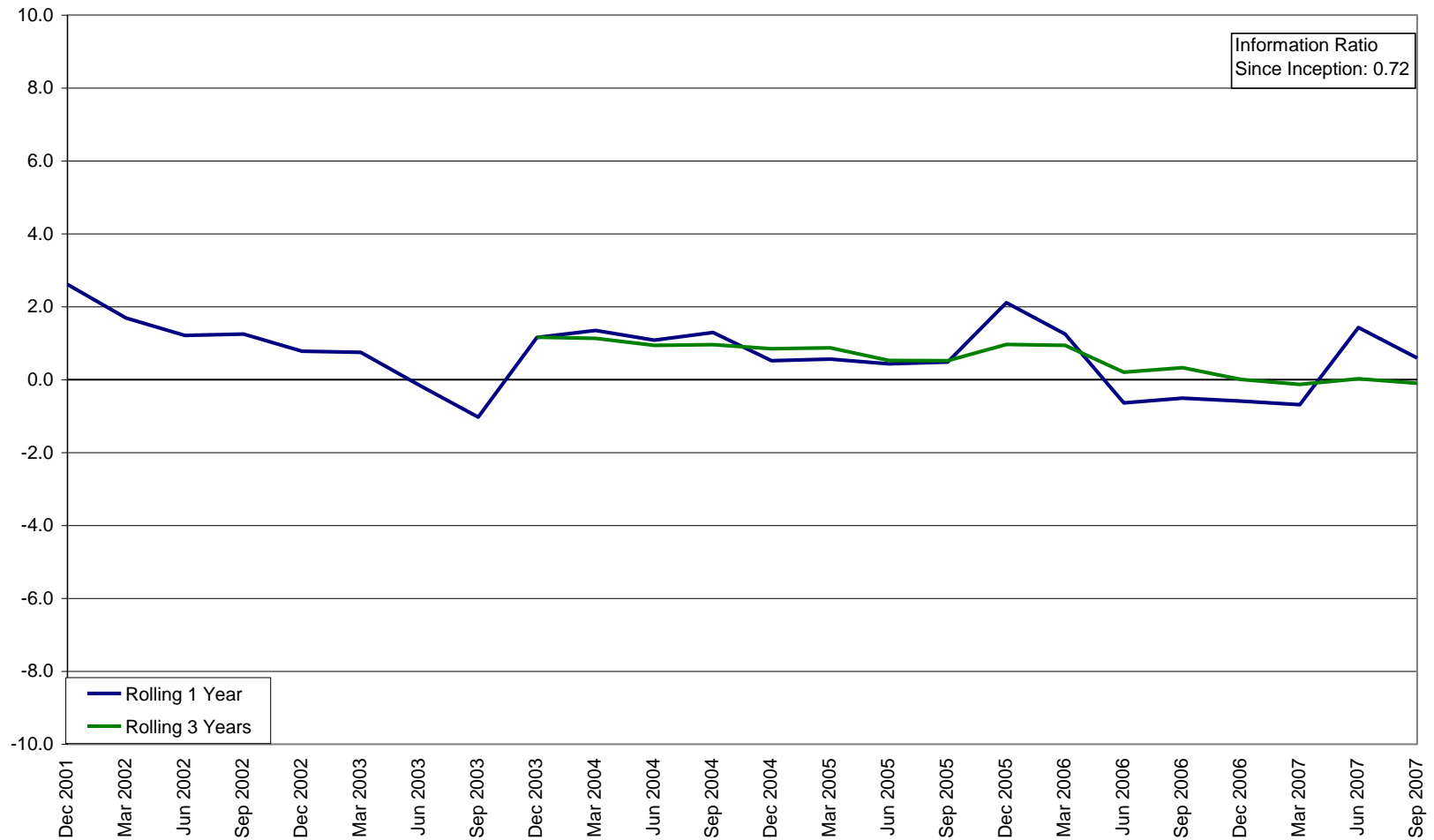


Calculated quarterly

# Information Ratio

## Internally Managed ASRS E3

Inception Date November 30, 2000 - Period Ending September 30, 2007

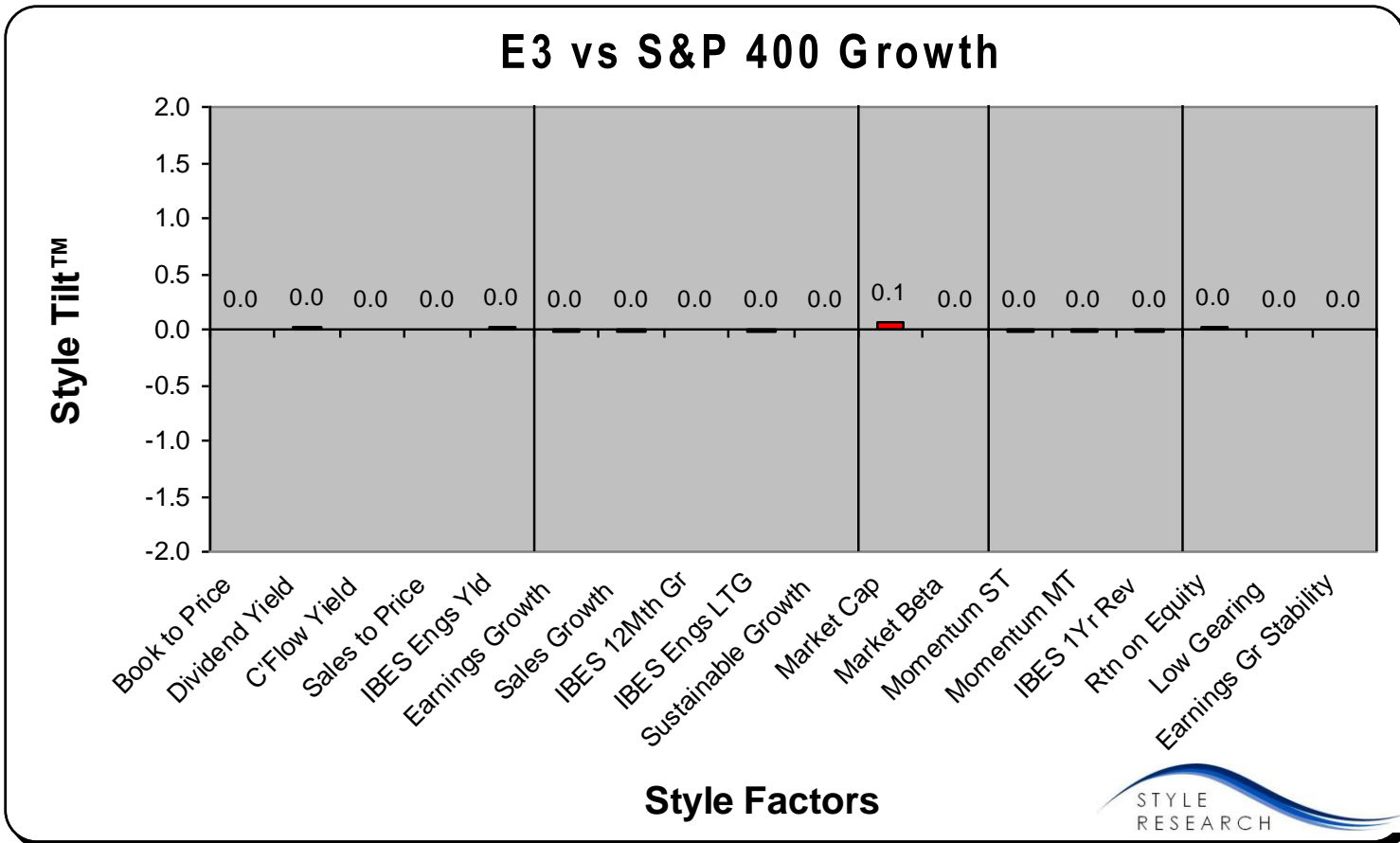


Calculated quarterly

## Positions: Style Analysis – Portfolio Style Skyline

### Internally Managed ASRS E3

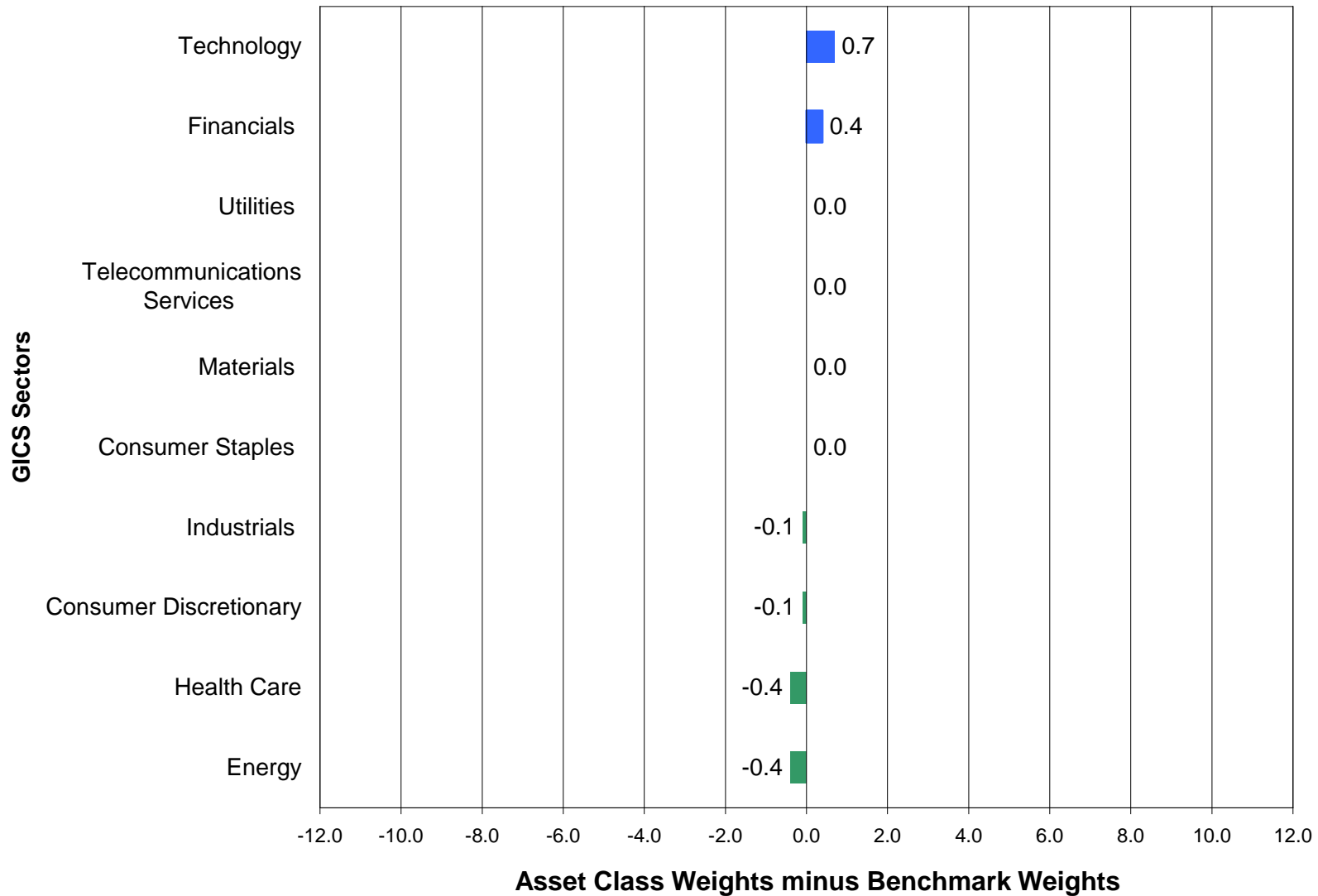
As of September 30, 2007



## Positions: Economic Sectors

Internally Managed ASRS E3

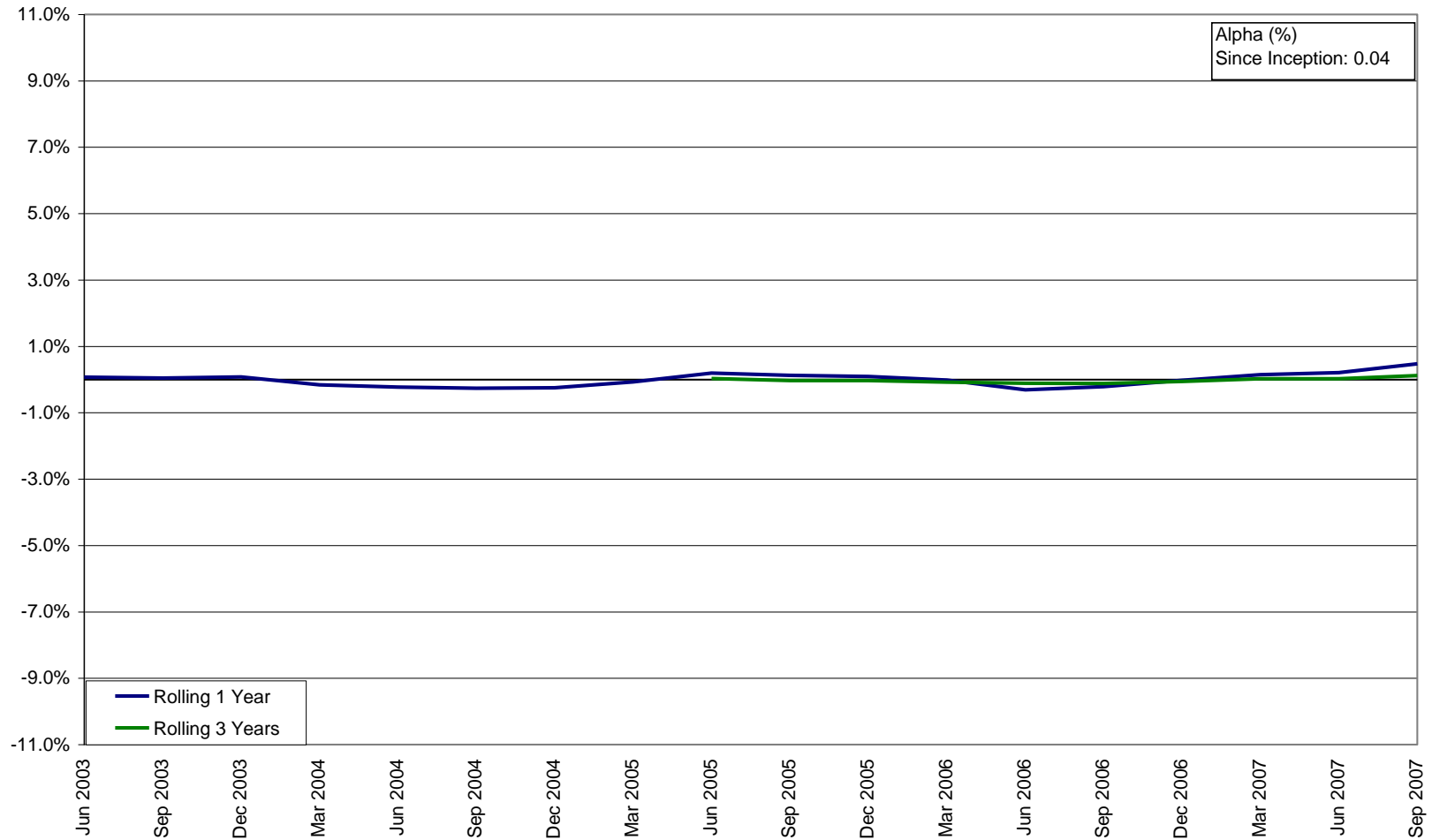
As of September 30, 2007



# Alpha

## Internally Managed ASRS E4

Inception Date June 30, 2002 - Period Ending September 30, 2007

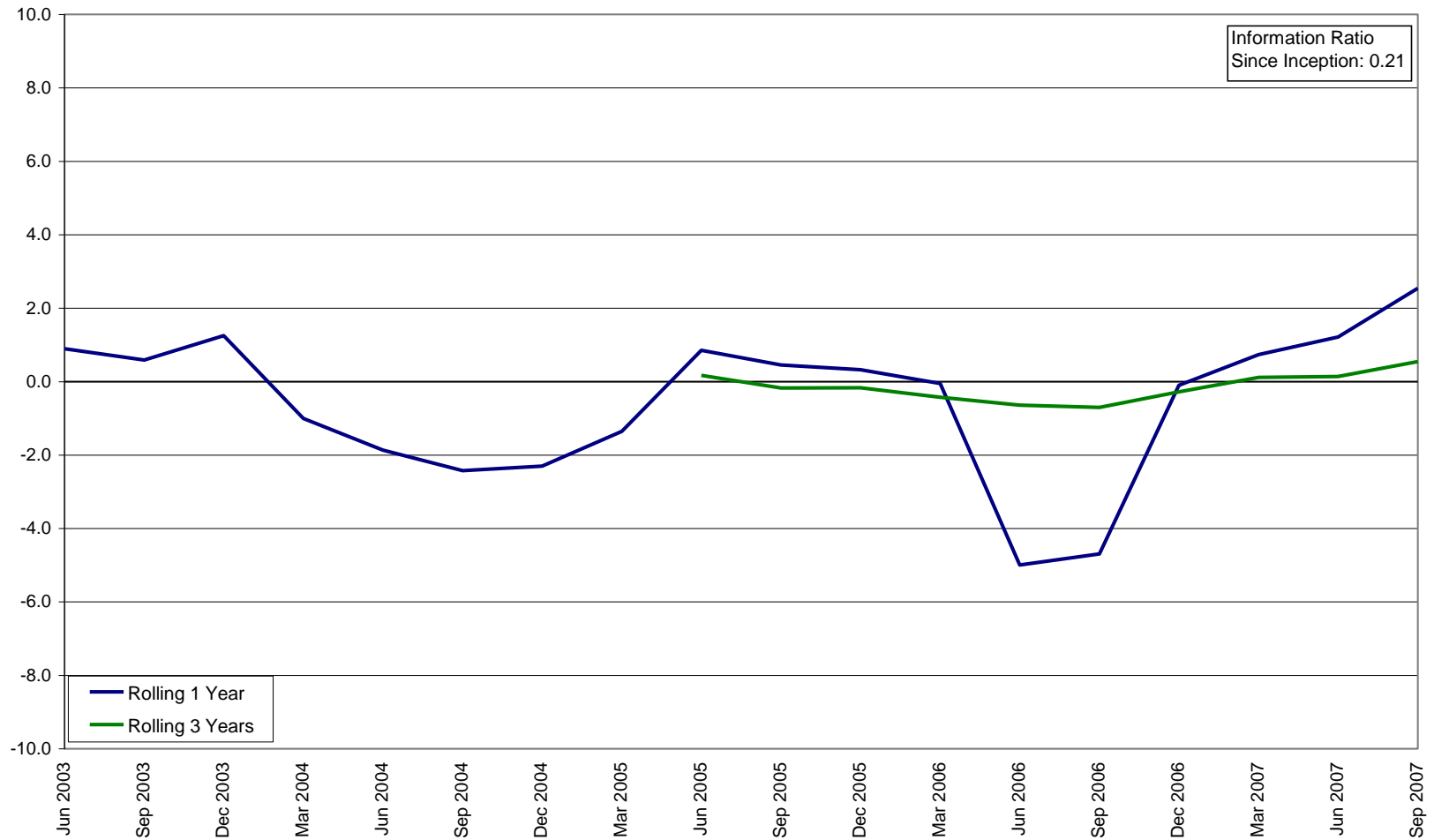


Calculated quarterly

# Information Ratio

## Internally Managed ASRS E4

Inception Date June 30, 2002 - Period Ending September 30, 2007



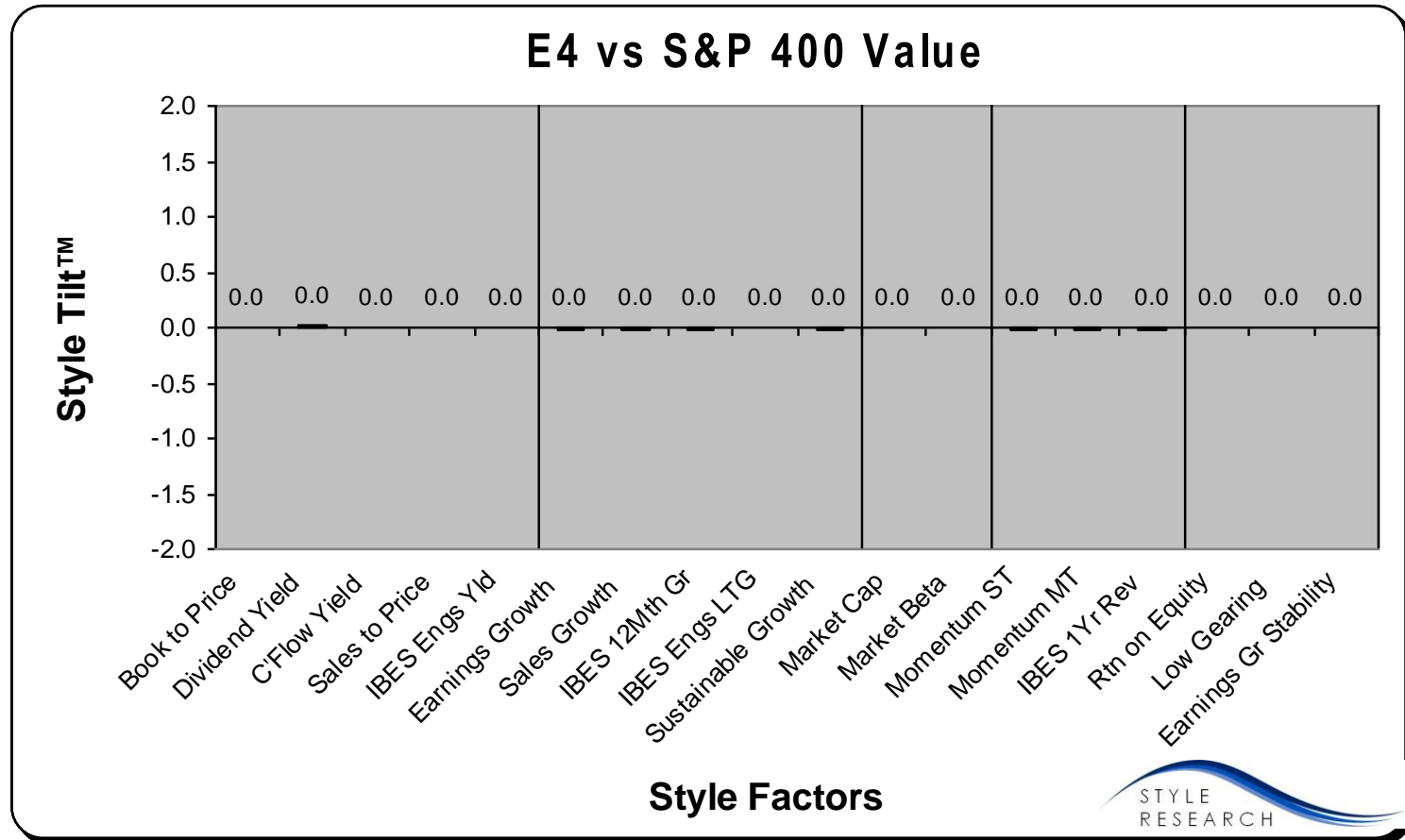
Calculated quarterly



# Positions: Style Analysis – Portfolio Style Skyline

Internally Managed ASRS E4 (Passive)

As of September 30, 2007



## Positions: Economic Sectors

Internally Managed ASRS E4

As of September 30, 2007

